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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Little Fiends Dept.
Industrial Air Conditioning Progress
Refrigerated New York
Advice to Salesmen
Substitutes for Worth
Memorable Quotes

Stories of the Week

"Don't worry if your husband is a flirt," mother advised daughter.

"Our dog chases cats, too; but if he ever caught one he wouldn't know what to do with it."

It is said we spend more on wild life than we do on child life in this country, but parents will find this to be a puzzling distinction.

An optimist is one who believes shoes will cost $60 a pair by 1965. A pessimist believes they will cost 60 rubles.

Even though some of your fondest dreams fail to materialize, you can be thankful that most of your nightmares don't come true, either.

See no evil, speak no evil, hear no evil, and half the women's club in the country will fold up.—*Farm Journal.*

Perserverance is the most overrated of traits if it is unaccompanied by talent; beating your head against a wall is more likely to produce a concussion in the head than a hole in the wall.—SYDNEY J. HARRIS.

Economy is still a household word in America. It means a large size package.

Janitor: a floor flusher.

Little Fiends Dept.

Mary heard her daddy say he was going to entertain some of his friends at a home beer party.

So she nailed the bathroom door shut.

Industrial Air Conditioning Progress

Imaginative air conditioning, refrigeration, and heating engineers haven't been dragging their feet recently. In the competitive struggle *to anticipate* an expected boom in commercial and industrial air conditioning, they're gonging already.

For example: new lines of real big self-contained air conditioners (up to 30 tons capacity!) have been developed

(Concluded on Page 8, Col. 1)

FHA Housing Applications Up 14% In Jan.

WASHINGTON, D. C. — Applications for Federal Housing Administration mortgage insurance on new homes rose 14% in January to an annual rate of 261,000 units, a 64% jump over the like 1957 month, the White House announced.

Favorable report on housing prospects last month showed that, in addition to the increase in mortgage applications, requests for FHA insurance on used homes and new rental and cooperative housing also climbed.

See story on new anti-recession move on Page 4.

With one exception, it was reported, the January rate of mortgage insurance applications on new homes is the highest monthly figure since September, 1955. Requests for insurance on existing homes in January were 26% higher than the preceding

(Concluded on Page 29, Col. 1)

Reach-In Uses Air Curtain As Case Door

HOPKINS, Minn.—An automatic reach-in refrigerator dairy case using an air curtain to replace doors was installed in the new St. Anthony Village unit of Red Owl stores in suburban Minneapolis.

With the "Dairyflo" case, the customer reaches through the invisible vertical air curtain to select the merchandise she wants.

Milk, eggs, and other dairy products are positioned on endless belts in an adjoining walk-in cooler. The belts carry the products to a point where they can be scanned at eye-level and selected without bending or stooping, according to Robert N. Benham, manager of public relations for Red Owl, Inc.

As soon as the customer removes an item from the Dairyflo, the endless belt is activated and brings forward another item into position.

The case is a Red Owl exclu-

(Concluded on Page 23, Col. 2)

'Magical List'

COMMERCIAL distributor shows his prospect a list of services his firm will perform under contract and wins sale after most men would have conceded defeat. To find out what was in that list turn to page 24 in the COMMERCIAL SECTION.

Says Richmond Blast Due to Leaky Gas Main

RICHMOND, Va.—This city has been sued by the owner of Merchants Ice and Cold Storage Co. warehouse, severely damaged by an explosion Jan. 16, for $667,431.22 in Federal Court.

Atlantic Corp. of Atlanta, owner, charged the explosion was caused by natural gas escaping from street mains. Seven men lost their lives in the blast.

The firm has asked $642,431.22 for damage to the warehouse, loss of business, and expense of rescue operations. An additional $25,000 is demanded in behalf of the family of a foreman, who was killed.

In addition, Atlantic Corp. requested permission to amend

(Concluded on Page 29, Col. 5)

Multiple Deck Cases Continue Rise, CRMA's '57 Figures Show

CHICAGO—No great changes in the commercial refrigerator equipment product trends that have been evident in the past few years are to be noted in the ratio figures for sales of such equipment reported for 1957 by the Commercial Refrigerator Manufacturers Association.

However, such variations as are recorded in these ratios of various products to the total volume of sales, as compiled by Paul Sullivan, executive secretary of the CRMA, continue to be of great assistance in presenting the picture of the types of equipment that are most wanted and purchased by customers for commercial refrigerators.

After having registered the steadiest and most impressive gains for several years, open type low temperature display cases for frozen foods eased off slightly (1%) in 1957 from 1956. However, this category still represents a healthy 31% of the total commercial refrigerator sales volume.

Multiple deck display cases were up again for the third straight year, pointing out the

(Concluded on Page 23, Col. 4)

Third Best Sales Year Reported

CHICAGO—Final figures on the dollar volume of sales of commercial refrigerator equipment manufactured by members of the Commercial Refrigerator Manufacturers Association reveals a net decrease of 8.55% from 1956 totals, this being in line with earlier predictions published by AIR CONDITIONING & REFRIGERATION NEWS.

Dollar sales by the CRMA manufacturers represented the third best year in the history of the commercial refrigerator industry, being topped only by 1956 and 1957.

Forecasts from individual manufacturers gathered by CRMA are on the optimistic side, with the consensus calling for industry volume to be as good if not better than 1957. It is felt that there will be a gradual build-up in the first half, with a good chance of a strong second half.

Easing of money rates is being felt, and it is felt that quite a few new store projects that had been abandoned or postponed because of the inability to finance, have come to life.

BEHIND PAGE ONE . . .

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Carpenters Refused Injunction In Row with Refrigeration Men

MINNEAPOLIS — Local carpenters, in their effort to assert jurisdiction over the unloading and setting in place of refrigerator fixtures for installation in food markets, failed to get a temporary injunction to prevent two local contractors and the refrigeration mechanics union from denying carpenters the right to perform this work.

Twin City Carpenters District Council, AFL-CIO, asked the Minnesota district court for the injunction. Judge Earl J. Lyons dismissed the petition on the grounds that the court lacked jurisdiction. Jurisdiction is reserved to the National Labor Relations Board, he pointed out.

The contractors involved, Allied Store Equipment Co. and R. R. McChesney & Sons, Inc. had previously filed charges of unfair labor practices against the carpenters with the NLRB.

Charges asserted that 21 work stoppages have occurred since 1951 because carpenters walk off the jobs when refrigeration work is assigned to the steamfitters union representing the refrigeration mechanics and the steamfitters walk off when it is assigned to carpenters.

Neil Herman, vice president of Allied Store Equipment, told the NEWS last week that NLRB

(Concluded on Page 29, Col. 3)

Heat Pump To Melt Southern Snow?

DURING NEW ORLEANS' first snow storm in 59 years, L. Gravois (r.) accepts delivery of a new heat pump air conditioner for his pharmacy. That was on Lincoln's birthday. Last time it snowed in 1899, it was also on Lincoln's birthday. Charles Gambel, president of General Heating & Air Conditioning Co., Inc., (center), had to see this for himself.

York To Move Home Cooling Production

DECATUR, Ill.—Retooling of Borg-Warner Corp.'s Marvel-Schebler Products Div. plant here will begin next fall for production of York residential air conditioners and refrigeration compressors.

York Corp. officials said that as soon as the firm's 1958 production of room air conditioners is completed, operations will be relocated in Decatur.

They added that this was primarily a move of hermetic compressor production facilities and all York hermetic compressors will be made in Marvel-Schebler's transmission plant, which will become a part of the York operation.

(Concluded on Page 29, Col. 3)

Specifications of Conditioners, Mar. 10

The March 10 issue of AIR CONDITIONING & REFRIGERATION NEWS will be the Air Conditioning "Show Case" issue, containing specifications on all major 1958 packaged air conditioner lines. This issue will contain much other pertinent and useful information.

See page 29 for prices on extra copies, and send in your orders now.

New NAPC, MCAA, UA Committee To Push For Management, Labor Cooperation

WASHINGTON, D. C. — A new Joint Industry Program Committee, composed of officials of the National Association of Plumbing Contractors, the Mechanical Contractors Association of America, and the United Association of Plumbers and Pipefitters, has been formed for the plumbing and mechanical contracting industries, it was announced here recently.

To Supplement Council Work

The new committee will supplement activities of the Industrial Relations Council, which has been in existence to serve the three organizations since 1950. It will be composed of the three top officials of each organization, along with Executive Secretaries Jerome O. Hendrickson, NAPC, and Lloyd Gruman, Jr., MCAA, who will act as co-secretaries.

"While the Industrial Relations Council has made commendable progress in the minimizing of industrial strife, the object of the Joint Industry Program Committee will be to go beyond this field," the announcement said.

"It will seek to promote wider cooperation between management and labor for the positive and constructive benefit of all those engaged in the affected industries and the public as well.

To Rotate Job

The chairmanship of the committee will rotate among the groups annually. Joseph H. Spitzley, president of MCAA, was elected the new committee's first chairman.

The first official meeting of the new committee will be held on Tuesday, May 6, in Washington, D. C. Representing the NAPC on this group will be Wilbur S. Hokom, Los Angeles, president; John M. Rhoades, Sarasota, Fla., vice president; Irving L. Rechkemmer, Canton, Ohio, 2nd vice president; and Hendrickson.

MCAA will be represented on the committee by Joseph H. Spitzley, Detroit, president; Horace E. Wetzell, Cleveland, vice president; William P. Scott, Jr., treasurer from San Francisco; and Gruman.

United Association representatives on the committee are Peter T. Schoemann, general president of UA; John J. McCartin, assistant general president; and William Dodd, general organizer.

$2.5 Million City Hall Conditioning Planned

PHILADELPHIA—Plans for complete air conditioning of City Hall at an estimated cost of at least $2.5 million have been announced by Mayor Richardson Dilworth.

A drastic shift in the city's plans which originally called for air conditioning only a part of the huge structure, this move is part of an $8.5 million rehabilitation program for the hall, the city's chief executive said.

Developing Gas Conditioner

ST. JOSEPH, Mich. — Although it has no plans to market either in the near future, Whirlpool Corp. confirmed reports that it has a gas room air conditioner and a new-style top gas range burner in development.

Bill Would Force Mfrs. To Offer Retailers Products at Same Price

WASHINGTON, D. C.—Pending before the House Judiciary subcommittee on anti-trust is a proposed amendment to the Robinson-Patman Act designed to force manufacturers into making their products available to large and small retailers at the same price.

Comment from Federal Trade Commission has been invited as has that of the Justice Dept. and other interested U.S. agencies on identical bills (HR 10304 and HR 10305) to provide such an amendment, the subcommittee said.

This legislation would stipulate that producers must grant functional discounts to wholesalers when the manufacturer did not sell that merchandise directly to a retailer, it was explained.

At present, functional discounts are a permissive matter under the R-P law. Some retailers must pay higher prices from wholesalers than prices paid by others who buy directly from the manufacturer, it was further noted.

May Ask Protection To Halt Unexpected Franchise Canceling

WASHINGTON, D. C.—Retail-manufacturer franchising relationships are currently being reviewed by the Senate's Small Business committee.

Congress may be asked to provide added protection for retailers against sudden and unexpected cancellation of franchises if the committee's annual report is followed.

Citing absence of mutuality of obligation in the past between many franchise agreements, the report said the committee will determine whether to ask for extension to other industries the franchise protection given auto dealers by the 84th Congress.

Gives Church Conditioner

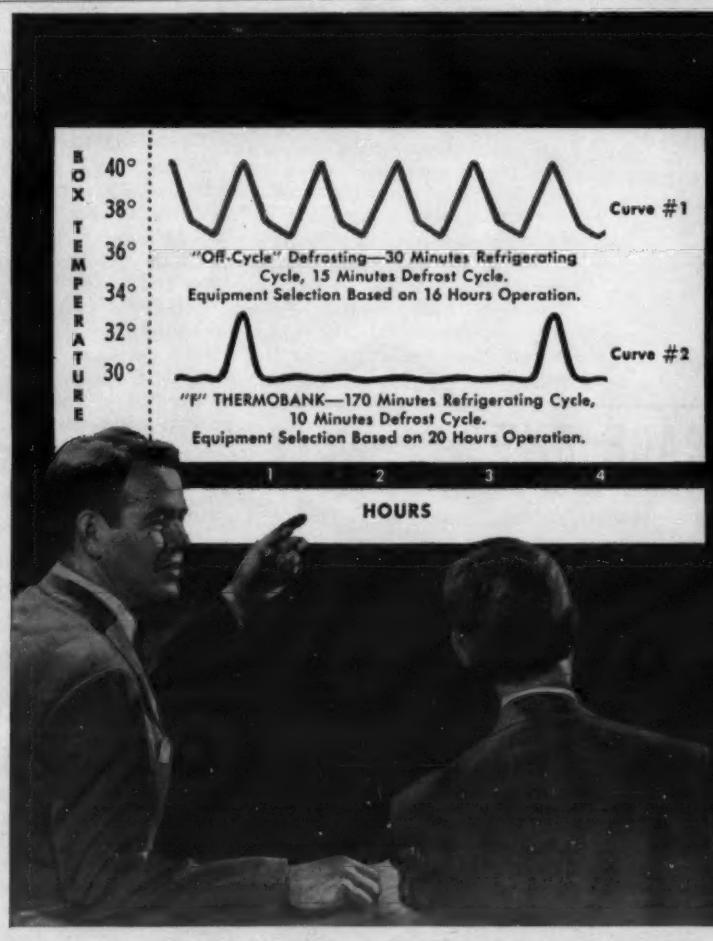
DECATUR, Ill. — A member of the congregation, who wished to remain anonymous, recently gave the Douglas Ave. Methodist church here an air conditioning system, the minister announced.

Designed to alternately condition the sanctuary and Shepherd Hall, the 25-ton refrigeration unit and air distribution system are being installed by Central Illinois York Co., it was added.

Whirlpool V. P. Resigns

ST. JOSEPH, Mich.—Resignation of John L. Bricker, vice president of Whirlpool Corp., was announced by Elisha Gray II, president.

Bricker will join Kenyon & Eckhardt, Inc., national consumer advertising agency for Whirlpool, as vice president of west coast operations. He joined Whirlpool as director of marketing in March, 1956, and was elected a vice president in November, 1956.



FRESH FOOD INDUSTRY ACCLAIMS NEW KRAMER "F" THERMOBANK

KRAMER UNFOLDS A NEW CONCEPT OF REFRIGERATION APPLICATION FOR FRESH FOOD

To obtain the fullest advantage in the storage of most fresh food, a constant temperature of 30° or 32° must be maintained. Since every defrost cycle results in fluctuations in temperature and humidity, to maintain the best storage conditions the number of defrost periods and the length of each defrost must be reduced to an absolute minimum.

The new "F" THERMOBANK has the *fewest* possible defrost periods and is the only system that will go into a defrost when it is really needed and not before; this is most essential to prevent unnecessary defrost which results in wide temperature and humidity fluctuations in the storage room. (See Curves)

The "F" THERMOBANK is completely defrosted in the shortest possible duration (10 minutes). No other defrost system, regardless of type, can approach this fast defrost, but the rapidity of defrost is indispensable to hold the ideal conditions of 30° or 32°.

Because the "F" THERMOBANK guarantees the fewest and most rapid defrosts, equipment is selected for 20 hours operation. This permits the selection of a smaller compressor and a smaller THERMOBANK system resulting in lower first cost as well as economical operation. When the added benefits of "F" THERMOBANK features such as less waste, longer shelf-life, less dehydration, less mold and bacterial infection, and maintenance of "freshness" during storage, are included in the cost estimate, the "F" THERMOBANK is incomparable in value.

Selection and application of the "F" THERMOBANK are simple. Rapid selection tables covering a wide range of cooler sizes for 30° applications are available.

WRITE FOR BULLETIN TV-380

KRAMER TRENTON CO. • Trenton 5, N.J.

43 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

For more information about products advertised on this page use Information Center, page 21.

Chart your progress for bigger air conditioning sales from now on with GENERAL ELECTRIC

BLUEPRINT for LEADERSHIP

In Residential Heating and Cooling ★ ★ ★ ★ ★ ★

In Commercial, Industrial Air Conditioning ★ ★ ★ ★

This is going to be the BIG year for dealers of G-E Air Conditioning Division products—the year G-E Dealers move way out front in sales—because General Electric offers a BLUEPRINT FOR LEADERSHIP. It's designed to do just one thing: show air conditioning and heating dealers how to sell and install *more products than ever!* The Plan is built around the selling power of the General Electric name—the quality and variety of General Electric products. It includes a course in selling, General Electric's attractive financing plans, hard hitting advertising and sales promotion, and guided local advertising. If you don't have a G-E franchise, now's the time to inquire. Contact your nearest General Electric Distributor or mail coupon today. General Electric Co., Air Conditioning Division, 5 Lawrence Street, Bloomfield, N. J.

FOR FAST ACTION...contact your nearest General Electric Air Conditioning distributor, or the G-E Regional Manager in your area.

NORTHEASTERN REGION, NO. 1
570 Lexington Ave., Room 302, New York 22, N. Y.
J. J. Heffernan, *Regional Manager*

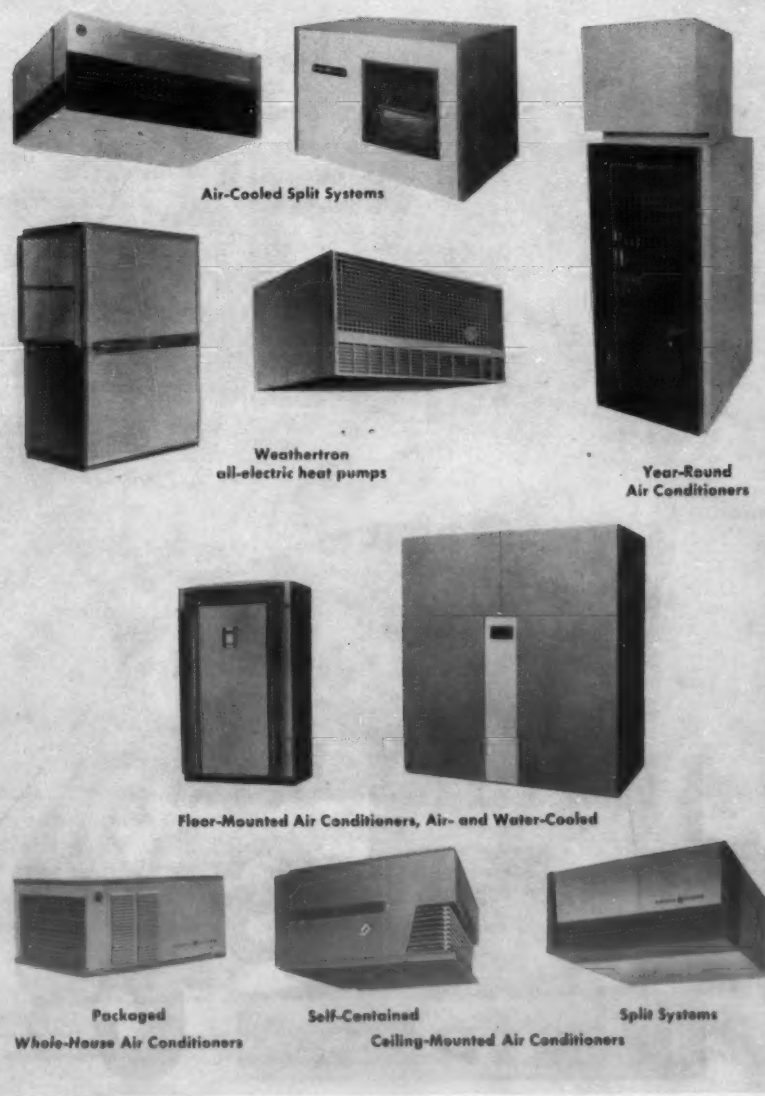
EAST CENTRAL REGION, NO. 2
20310 Kinsman Road, Suite 3, Shaker Heights 22, Ohio
W. H. Grant, *Regional Manager*

CENTRAL REGION, NO. 3
The Merchandise Mart, Room 1188, Chicago 54, Illinois
W. A. Mulcock, *Regional Manager*

SOUTHEASTERN REGION, NO. 4
410 Red Rock Building, Atlanta 3, Georgia
P. M. Hooven, *Regional Manager*

SOUTH CENTRAL REGION, NO. 5
511-513 International Trade Mart, New Orleans 12, La.
E. J. Guillory, *Regional Manager*

General Electric Offers a Complete Line of Heating and Cooling Units for Homes, Offices, Stores, Factories



Air-Cooled Split Systems

Weathertron all-electric heat pumps

Year-Round Air Conditioners

Floor-Mounted Air Conditioners, Air- and Water-Cooled

Packaged Whole-House Air Conditioners

Self-Contained Ceiling-Mounted Air Conditioners

Split Systems

OR MAIL COUPON

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

ACD 3

General Electric Company, Air Conditioning Division
5 Lawrence St., Bloomfield, N. J.
Attention Mr. H. N. McMenimen

I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

I am interested in residential heating and cooling ☐
I am interested in commercial and industrial air conditioning ☐
I am interested in both ☐

NAME_____

FIRM_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

For more information about products advertised on this page use Information Center, page 21.

FRB Cuts Bank's Reserve Requirements To Make $3 Billion Credit Available

WASHINGTON, D. C.—Member bank's reserve requirements were cut by the Federal Reserve Board by a half percentage point in another anti-recession move to free some $500 million in reserves.

This action could theoretically mean expansion of about $3 billion in available bank credit since usually one reserve dollar on the average is multiplied to support six dollars of additional loans.

Aimed at promoting business recovery, W. M. Martin, FRB chairman, said that in addition the board will ask Congress later to revise the reserve set up to ease the requirements permanently.

This reduction places reserve requirements at 19½% of net demand deposits for the New York City and Chicago central reserve banks. Reserve requirements are percentages of their deposits member banks of the Federal Reserve System must keep on account with Federal Reserve banks. About $125 million in reserves held by member banks will thus be freed immediately by this action. Effective date of the cut is Feb. 27.

Trying to find the right man for a hard-to-fill vacancy—the NEWS' Classified Ads are read by your man.

Place your ad today!

To Bid for Auto Conditioner Lead

FT. LAUDERDALE, Fla.—International Automotive Air-Conditioning, Inc. has announced plans to bid for a leading position in auto air conditioning.

Harry T. Kessler, president, said the fledgling firm "has come up with an auto air conditioner that will equal any unit on the market in cooling efficiency." He also claims to have low price for his unit.

Underdash air conditioner includes two large fans, two motors, three round louvers, pushbutton controls, magnetic clutch, and a built-in dehydrator. Kessler stated this last is "exclusive" with his product.

The company plans to manufacture several thousand units for both domestic and export distribution during 1958, according to Kessler. Its pilot run in 1957 produced "a few hundred air conditioners," enough, he said, to fill initial demand in this area.

Kessler is retired president of Tuthill Pump Co. He is president and treasurer of the company, W. E. Bothe, executive vice president, and R. J. Heffernan, vice president and secretary.

Cleveland ASRE Features Millsom on Home Cooling

CLEVELAND—Carl W. Millsom, vice president, Perfection Industries, Div. of Hupp Corp., was the featured speaker at the Feb. 18 meeting of the Cleveland Section, American Society of Refrigerating Engineers.

Millsom discussed "Sales and Application of Residential Air Conditioning, 1937-1957." The past presidents of the Cleveland Section were honored at the meeting.

At Tyler

R. L. Tyler, Jr. Upped To Administrative V.P.

NILES, Mich. — Robert L. Tyler, Jr. has been appointed administrative vice president of Tyler Refrigeration Corp.

R. L. Tyler, Jr.

In his new post, Tyler will be directly responsible for customer relations, scheduling and forecasting, order department, traffic department, systems and procedures, and the Champion Vender Div.

Tyler has been working for the company in various posisions since 1946; during summer vacations from 1946 through 1950, and full time since his graduation in 1951 from Dartmouth college where he was a star halfback on the football team.

His duties during this 12-year period have included work in the shipping department, walk-in cooler production, print shop and advertising, sales department, production control, a year in the Chicago sales office, a year in charge of Central Div. sales, and three years as assistant manager of the Harder-Freez Div.

In 1955 he was made assistant to the president of Tyler Refrigeration, and Comosario of Tyler Refrigeration International C.A., Caracas, Venezuela. He was elected secretary of the parent company in 1956, and made a member of the executive committee in 1957, it was added.

'No Apprenticeship'

Contractors Protest UA Agreement on 8

SAN FRANCISCO — Written protest has been made to the recent settlement made by United Association Local 38 which provided that eight men who had not spent any time in apprentice training were by virtue of the agreement made into steamfitter journeymen and apprentices on the basis of the time employed with a firm in another field of air conditioning work.

When facts of the settlement became known to Associated Plumbing Contractors of San Francisco, they sent a written protest to Joe Mazzola, business manager for Local 38.

APC wrote they felt Local 38 should re-examine the policy of blanketing men into the union without having gone through the accepted standards of apprenticeship training.

Mazzola's view is that any one employed in heating, ventilating, and air conditioning, belongs to the U.A., and whether or not they have journeymen skills, the U.A. will continue to include these "specialty" groups.

Fire Group Meeting Set In May

BOSTON — The 62nd annual meeting of the National Fire Protection Association will be held at the Palmer House, Chicago, May 19-23, the group announced.

RX *MIXED-FLOW BLOWER UNIT: A TORRINGTON 1st*

The Torrington RX Radiax blower introduces a new development in air impeller engineering.

It is a direct drive mixed-flow unit employing an exclusive Torrington design concept which results in the conversion of axially-developed air pressure into a radial flow pattern.

The result of this design breakthrough is a versatile unit that can be tailored to an extended range of customer needs by modification of the axial fan configuration to exact performance specifications. This eliminates dependence upon a variety of different sized units for varying requirements.

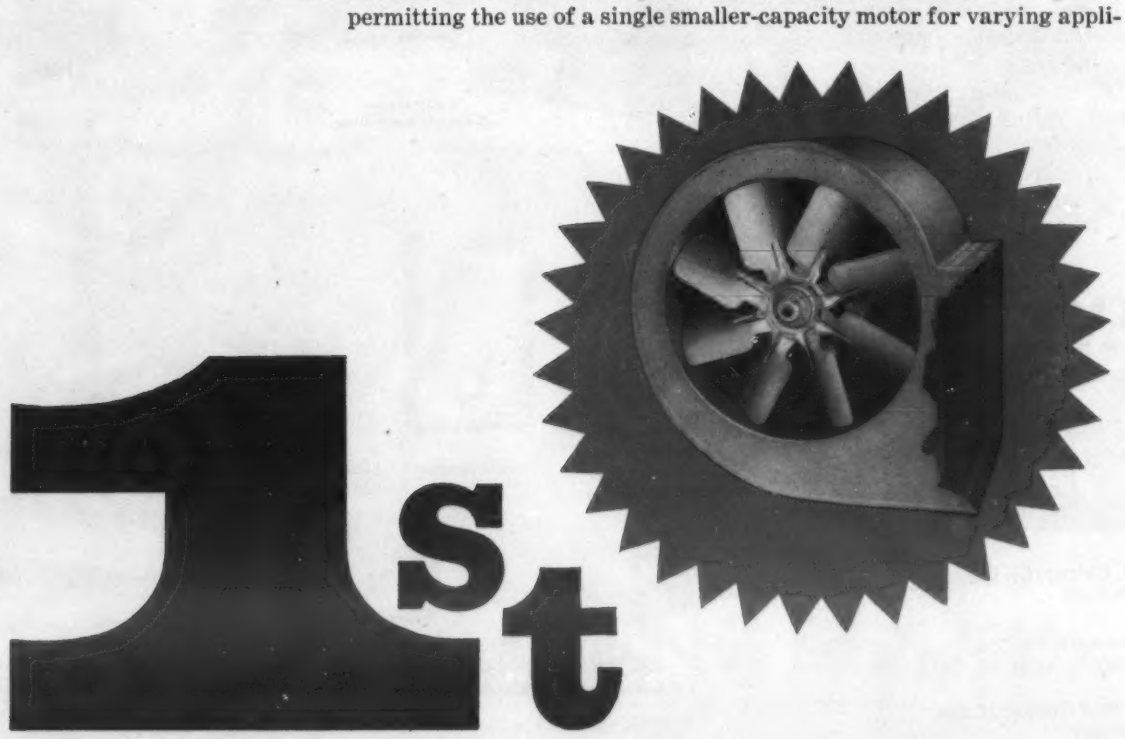
The RX offers three important advantages:

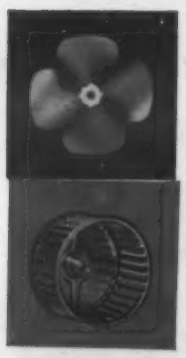
PERFORMANCE—A flat power curve makes it a non-overloading unit, permitting the use of a single smaller-capacity motor for varying applications, and availability of the unit in sizes heretofore too large for direct drive applications.

CONSTRUCTION—A vertical center panel divides the unit longitudinally and supports the motor at its center of gravity. Resilient motor and fan mountings minimize noise and vibration. Result is quiet performance, and easy assembly and service.

ECONOMY—The basic design permits size reductions of as much as 36 per cent in the cubic dimensions of the unit, without sacrifice of performance. Thus, the RX is a thinner, more compact unit that can be fitted into tighter areas without choking of air intakes.

The design and performance of the RX give it a versatility that is of special importance to design engineers of air moving equipment. Full specifications are available.





THE TORRINGTON MANUFACTURING COMPANY

TORRINGTON, CONNECTICUT • VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO

For more information about products advertised on this page use Information Center, page 21.

MEET ANOTHER DELCO EXTRA

He's one of our hermetic motor plant agents and he stops trouble before it starts

Here is another Delco extra that doesn't show up on "spec" sheets, but does pay off in customer satisfaction. This Delco Products man is a traveling inspector on hermetic motors—known for his ability to spot customer problems before they are problems. Often, his suggestions have helped customers improve production efficiency and cut costs.

The most important aspect of his job, however, is that he represents an unsurpassed service program that backs up Delco . . . a service program that assures you of on-time delivery and satisfaction in the best hermetic motors it is possible to produce. Why don't you call your nearby Delco Products Sales Office and find out about all the extras that have made Delco motors so popular with so many users!

Precision made to your specifications, Delco Hermetic Motors are backed by service you can always count on.

GM GENERAL MOTORS DELCO

DELCO MOTORS

Delco Products, Division of General Motors, Dayton, Ohio

- APPLIANCE MOTORS • INDUSTRIAL MOTORS
- GENERATORS • ACTUATORS
- AUTOMOTIVE AND HYDRAULIC EQUIPMENT
- HERMETIC MOTORS AND CONTROLS
- RESIDENTIAL GARAGE DOOR OPERATORS
- AIR SUSPENSION COMPONENTS

For more information about products advertised on this page use Information Center, page 21.

NLRB Ruling Favors Bahnson; Sheet Metal Workers Deemed Not To Be 'Craftsmen'

WASHINGTON, D. C. — A petition filed by the Sheet Metal Workers International Association, AFL-CIO, seeking to set up a separate bargaining unit for sheet metal shop employes of Bahnson Co., Winston-Salem, N. C. has been dismissed by the National Labor Relations Board.

The maker of industrial air conditioning, textile cleaning, and broken-end collection equipment contended that "only a unit of all production and maintenance workers is appropriate." NLRB held in favor of Bahnson, finding that "sheet metal employes in the unit sought are not craftsmen entitled to separate representation."

Dated Jan. 13, the NLRB decision and order stated employer's operations are divided primarily into the sheet metal shop, machine shop, assembly department, stockroom, and warehouse. Each is under separate supervision.

"Although the sheet metal shop is located in a separate room and employes sought to use various tools customarily used by the crafts, it appears from the record that their work is repetitive," the decision said, "they form an essential part of the production process. . . ."

Reprints Available

Hermetic Compressor Design, Development, by Henri Soumeral. Only 40¢ each.
Mail this ad with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

Anemostat Book Covers 'All-Air' Duct Designing

NEW YORK CITY—A special 24-page manual on the design of ducts for "All-Air" high velocity heating and air conditioning systems has been published by Anemostat Corp. of America.

The manual contains 11 pages of performance tables, many of which have been compiled for the first time, it was pointed out. The correct design procedure is explained by actual step-by-step computations on two work sheets for a 10-story office building.

Copies of the manual as well as work sheet pads may be obtained from local Anemostat representatives or from Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y.

IBR Schedules Second Heating, Cooling School for Newark, June 17 to 19

NEW YORK CITY—A second I-B-R heating and cooling school has been scheduled for the Newark, N. J. area to accommodate the double-capacity overflow of registrations for the three-day course in design and installation of hydronic systems.

According to I-B-R General Manager Robert E. Ferry, the first Newark school, which was held Feb. 11-13, was sold out Jan. 17, almost a month before the school's scheduled date.

Each I-B-R school is designed for a maximum of 100 students. A total of 201 registrations were received for the Newark school before it was held.

The second Newark school will be conducted June 17-19 at the Irvington House, 925 Springfield Ave., Irvington (Newark area), N. J.

The Philadelphia school, held Feb. 4-6, also sold out early but the Institute's crowded school schedule leaves no open dates for a second school in this or other areas in the immediate future, it was noted.

Contractors and wholesalers are signing up in large numbers for other schools to be held in 1958, Ferry reported.

A tuition of $36 covers all materials and texts used in the course, which teaches modern methods of calculation, design, and installation of hydronic heating and cooling systems.

The I-B-R school schedule for the remainder of 1958 is:

Dayton, March 11-13; St. Louis, March 18-20; Chicago, March 25-27; Detroit, April 8-10; Cleveland, April 15-17; Pittsburgh, April 22-24; Buffalo, April 29-May 1; Boston, May 13-15; Hartford, Conn., May 20-22; Mineola, L. I., N. Y., May 26-28; Albany, N. Y., June 10-12.

Schedule of remaining 4-day short courses:

Iowa State college, Ames Iowa, March 3-6; Pennsylvania State university, University Park, Pa., April 7-10; University of New Hampshire, Durham, N. H., Aug. 11-14; North Carolina State college, Raleigh, N. C., (September or October, dates not definite); Michigan State university, E. Lansing, Mich., Dec. 15-18.

Precipitation Seminar Set for Penn State June 9-13

UNIVERSITY PARK, Pa.—A seminar of interest to engineers in public utilities and in various industries who are concerned with the installation and operation of electrical precipitation equipment will be held June 9 to 13 at The Pennsylvania State university.

Ralph E. Armington, associate professor of electrical engineering at Penn State, is chairman of the seminar. The first day and a half will be devoted to the principles underlying the electrical precipitation progress, and will be presented by Dr. H. J. White, director of research, Research-Cottrell, Inc.

The remainder of the week will be devoted to precipitator applications with particular reference to public utilities. There will also be discussion of the problems of energization and measurements.

Seminar participants will be divided on three afternoons into smaller special interest groups to discuss specific problems in precipitation.

Inquiries should be addressed to the Extension Conference Center, The Pennsylvania State university, University Park, Pa.

Sales help when needed is just one reason I suggest American Blower Packaged Air Conditioners

There's a factory training school

You are offered a full training course by American Blower's skilled engineers and seasoned sales experts. You learn the products inside out, including installation and service. You learn how to sell them and who to sell them to.

There are leads on new jobs

Your distributor gets sales leads from American Blower branch offices. These leads are directed to you and can result in profitable new jobs. Remember: you can sell every business with the complete line American Blower offers.

There's help with complex surveys

At your service, at each of the 73 branch offices located throughout the country, are American Blower's trained sales engineers. These men are ready to assist you on unit selection in any large or complex air-conditioning survey.

There's advertising and promotions

Powerful ads in leading national magazines, and hard-hitting sales promotion, build the American Blower brand name, and help presell your customers for you. American-Standard,* American Blower Division, Detroit 32, Mich.

It pays to install American Blower Packaged Air Conditioners

* American-Standard and Standard® are trademarks of American Radiator & Standard Sanitary Corporation.

American-Standard Products

AMERICAN-Standard

AMERICAN BLOWER DIVISION

BETTER THAN EVER

Valve Plates and Seals for Commercial Refrigeration Compressors

A B C D
← Long life, high speed, metal-to-metal seals
The only valve plate with replaceable seats →
For complete details see your wholesaler or write for bulletins Nos. 806 and 806A. OEM inquiries invited

CHICAGO VALVE PLATE & SEAL COMPANY

successors to Chicago Seal Co.

Merrimac 7-5666

5941 FULLERTON, CHICAGO 39, ILL.

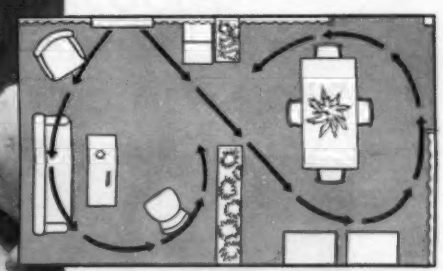
Refrigeration Components Engineering — Manufacturing

Mark of Styling Craftsmanship | Mark of Engineering Leadership

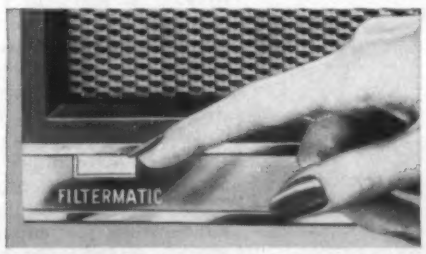
ONLY KELVINATOR GIVES YOU THESE TWO GREAT NEW ROOM AIR CONDITIONER FEATURES TO SELL!

1. Two-Directional Cooling! 2. Filtermatic Signal!

IT'S SO EASY TO DEMONSTRATE Two-Directional Cooling. Cool air can be directed left or right, up or down . . . or left and right and up and down all at once. Simply flick the control knobs that operate the two sets of vertical and two sets of horizontal louvers and your prospects can feel the difference. And when they do, you'll feel the difference in sales!



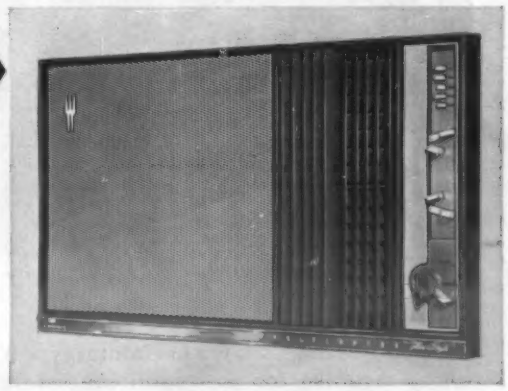
NEW 1958 1 H.P. KELVINATOR COOLS 2 ROOMS! New Kelvinator Two-Directional Cooling gives you the biggest customer-convincer in the room air conditioner business. And only Kelvinator has it! Yes, only Kelvinator lets you put the cold air where you need it when you need it. Kelvinator gives you the capacity and air flow control to channel cool, clean, refreshing air into two rooms at the same time.

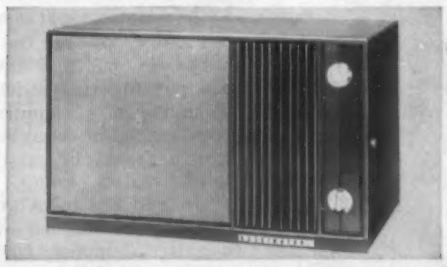


NEW FILTERMATIC SIGNAL SHOWS RED when filter becomes dirty and needs replacing. As long as Kelvinator's exclusive Filtermatic Signal stays white, the filter is clean and the user is getting full cooling capacity. A sales-making demonstration!

6 ALL NEW 1958 "THIN-STYLE" MODELS—So compact—so narrow they fit into 27-inch openings . . . in the window, or through the wall. All have that sheer beauty and subtle elegance you get only with Kelvinator's new "Style Mark" design. Lovely Polar Grey and harmonious Twilight Grey are dominant colors. Entire finish is of highest quality for lasting loveliness.

Model	Current	Compressor
RH-1041	12 amp., 115 volt	1 H.P.
RH-1061	7½ amp., 115 volt	1 H.P.
RH-1081	12 amp., 115 volt	1 H.P.
RH-1082	230 volt	1 H.P.
RH-1581	12 amp., 115 volt	1½ H.P.
RH-2082	230 volt	2 H.P.

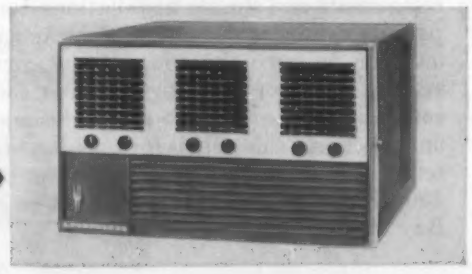




BUDGET LEADER BUILDS TRAFFIC with Kelvinator's new 1 H.P. "Challenger" model at a down-to-earth price. A big capacity, 12 amp., 115-volt unit housed in the compact "Thin-Style" cabinet. Quality features include: Adjustable thermostat, simple dial controls, adjustable air directional louvers, replaceable filter.

"MASTERPIECE" UNIT to the right has 2 H.P., big capacity for cooling large areas, small shops.

CASEMENT WINDOW UNIT also available—1 H.P., only 7½ amps., installs on any adequate 115-volt circuit.



Kelvinator *OLDEST MAKER OF ELECTRIC REFRIGERATORS FOR THE HOME*

DIVISION OF AMERICAN MOTORS CORP., DETROIT 32, MICHIGAN

American Motors Means More for Americans *Live Better Electrically*

REFRIGERATORS • WASHERS • DRYERS • ELECTRIC RANGES • FREEZERS • ROOM AIR CONDITIONERS

For more information about products advertised on this page use Information Center, page 21.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

for factories, office buildings, hotels, and huge apartment house projects.

Greatly expanding the application uses of packaged units, some of these air conditioners are equipped with fully hermetic 10 and 15-ton compressors. Biggest installations employ dual and triplet compressors of these huge sizes. This is real progress!

Additional entries in the race for industrial and institutional air conditioning exploitation include more easily serviced hermetic refrigeration systems, accessory heating coils for steam and hot water, and sealed ball bearings for fan shafts.

Our industry's engineers also have come up with pressurized atmosphere rooms for manufacturing processes, leak-sealing heat exchangers, impact and vibration testing devices, and deft equipment for checking giant compressor performance.

Branching into the apartment house market, foresighted marketers have hatched a supersize cooling unit (adaptable for the commercial field also) which offers adjunct cooling for multiple dwellings heated already by boilers and radiators, or by radiant panels.

Combining a blower and cooling coil in an air handling unit (for use with remote condensing units) said package can be placed at convenient points in any big residential or commercial establishment to insure personal comfort every day in the year.

Because the furnace is a basic unit of year-round air conditioning, improvements along that line are being squired along, too. The University of Illinois Heating Center, under Prof. Fahnestock's direction, has provided the research.

An entirely new fan and limit switch, half as small as previous models, has been developed for gas and oil-fired home heating systems, for example. Correlation of experimental data with analytical practical solutions for air flow problems have resulted in new means of employing capillary tubes, additionally.

Said method permits delay in the vaporization which normally takes place in the capillary tube prior to transition from liquid flow to a two-phase mixture of liquid and gas.

Such technical progress continues to spur growth of industrial and big-scale commercial heating and air conditioning installations.

Refrigerated New York

Two brothers in the Bronx accidentally locked themselves into a six-by-six-foot commercial refrigerator for nearly four hours recently in their new meat market.

A passerby heard Michael Marianaccio, 25, and his brother, Dominick, 27, pounding for help. Police freed them. A hospital ambulance was summoned, but the brothers refused medical aid.

Dominick explained: "It wasn't as cold in there as it was outdoors."

It was 32° in the refrigerator, and in the low 20's outside.

Advice to Salesmen

"You're either SUCCESSFUL or unsuccessful," advises Bill Power of Chevrolet.

"If you are successful, you have nothing to worry about. If you are unsuccessful, there are only two things to consider . . . either your health is GOOD, or you are sick. If your health is GOOD there's nothing to worry about.

"If you are sick, there are only two things to consider . . . either you are going to get well or you will die. If you are going to get well, there's nothing to worry about, and if you're not going to get well, there are only two things to consider. . . .

"Either you are going to Heaven, or else you are NOT going to Heaven. If you ARE going to Heaven, then of course there is nothing to worry about.

"If you are going to the other place . . . well, you'll be so doggoned busy shaking hands with old friends that you won't have TIME to worry."

SO WHY WORRY?

Substitutes for Worth

"When you visit a businessman," Bernard Baruch observes, "and find he has had his office decorated lavishly, you wonder: What deal has this fellow messed lately that he needs new leather couches and other trappings to reassure himself?"

Throughout history "pomp and circumstance" have substituted for genuine achievement. As Charlie Wilson put it: "Cheapest way to avoid raising a man's pay is to call him an executive and let him eat in the officers' dining room."

Status symbols—such as luxurious office decoration and lavish suites in hotels—are not unusual in today's business atmosphere. But they can be ludicrously uneconomic and unnecessary.

They are *de rigeur* in Washington, D. C., however, and a good thing for people who sell luxury items to "the man who has everything."

Memorable Quotes

The fickleness of the American public is well known. Curtailing your advertising program will provide some eager competitor with a wide-open invitation to step in and win away your following. It is easier to maintain momentum than it is to build it up after it has been allowed to bog down.—JAMES ADAMS.

The creative mind has three definite levels of productivity. There is the "walking-around" mind—when just enough mental energy is produced to keep a person functioning as a human being. The level above this could be called "awareness." In this state the mind starts to assemble the component parts which go into creativity—facts, fancies, knowledge, comparisons.

Finally comes the creative stage, in which known things are put together much like the elements in a chemical experiment, and new thoughts or ideas evolve from the mixture. The mind resists going into this state, and has to be goaded and coaxed and cajoled—which accounts, I suppose, for the idiosyncrasies of creative people.—JAMES ADAMS (recently deceased president of McManus, John, and Adams).

Reprints Available

Hermetic Compressor Design, Development, by Henri Soumeral. Only 40¢ each.

Mail this ad with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

MAXIMUM EFFICIENCY in MINIMUM SPACE...

The BOHN CH Ceiling Unit

Available in 2, 3, 4, 5 and 7½ tons capacities

- easy and economical to install and service
- silent, trouble-free operation
- insulated to eliminate sweating and absorb sound
- attractive, compact, heavy gauge bonderized steel cabinet with durable hammertone enamel finish
- built-in drain pan

Rear view of Bohn CH Ceiling Unit

The Bohn Ceiling Unit is a horizontal type blower evaporator, ceiling mounted for air-conditioning stores, shops, offices, restaurants and similar installations. Its attractive cabinet permits mounting directly in the conditioned space or the unit can be remotely mounted and connected to a duct system. Space for steam or hot water coil permits simple conversion to year-round air-conditioning and heating unit. Sectional side panels for easy inspection and maintenance. Filters removable from either side. Full rated 400 CFM per ton. Available in duct or grille models. Buy the known line—the *Bohn* line.

BETZ DIVISION BOHN DANVILLE, ILLINOIS

Manufacturers of Commercial Refrigeration, Industrial Air Conditioning and Special Heat Transfer Surfaces

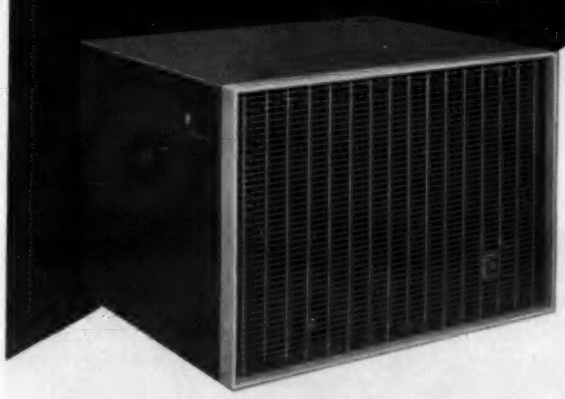
BOHN ALUMINUM & BRASS CORPORATION • BETZ DIVISION • DANVILLE, ILLINOIS

For more information about products advertised on this page use Information Center, page 21.

Nationally known ... accepted ... and "most-wanted" brand name

RCA Whirlpool

...NOW GIVES YOU EXTRA POWER IN SELLING
CENTRAL AIR CONDITIONING



A COMPLETE, PROVEN LINE OF AIR-COOLED CENTRAL UNITS ENGINEERED FOR SIMPLE, EASY INSTALLATION IN EXISTING AND NEW HOMES.

Put the proven power of the RCA WHIRLPOOL brand name to work selling for you. It's a brand name that moves merchandise because your prospects know it, trust it, and buy it readily. There's proven profit, too, in RCA WHIRLPOOL central air conditioners . . . because you have a full line to meet prospects' requirements . . . you have a flexible line that adapts to every type of home and need . . . and, most important, you have a profit line that's engineered so two men can make an average installation in as little as eight hours.

If you're looking for a better way to profit in the central air conditioning business . . . it will pay you to look to RCA WHIRLPOOL central air conditioners now!

2 HP. SELF-CONTAINED UNITS

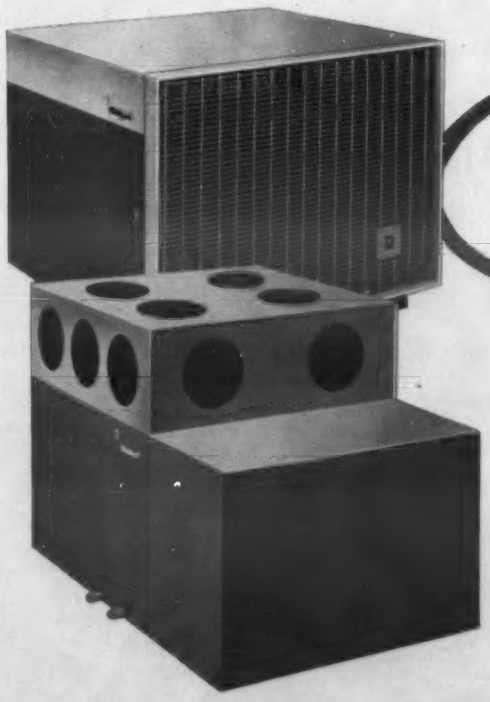
A complete system in one unit . . . for use where space is a factor but high capacity is required. Air cooled . . . installation is fast and easy.

SEPARATE REFRIGERATION AND COIL BLOWER UNITS

. . . for systems from 2 to 5 hp. Where cooling requirements are greater these units may be installed close-coupled or refrigeration unit may be placed in a remote location, inside or outside as required.

COOLING COIL UNITS

Available in horizontal or vertical styles . . . designed for simple, adaptable field installation in all types of furnaces.



FREE luxurious, expense-paid fun-filled trips to Las Vegas

. . . just for buying RCA WHIRLPOOL central air conditioners. Ask your RCA WHIRLPOOL distributor about it!

MAIL THIS COUPON NOW FOR COMPLETE INFORMATION.

SALES MANAGER, CENTRAL AIR CONDITIONING DIVISION
WHIRLPOOL CORPORATION, Box ACN-2A, St. Joseph, Michigan.

I am interested in knowing more about RCA WHIRLPOOL central air conditioners. Please send me complete information.

NAME_____

FIRM NAME_____

ADDRESS_____

CITY & ZONE_____ STATE_____

RCA WHIRLPOOL Home Appliances...Products of WHIRLPOOL CORPORATION St. Joseph, Michigan.

Join up!...it's easier to sell RCA WHIRLPOOL than sell against it!

Use of trademarks and RCA authorized by trademark owner Radio Corporation of America

For more information about products advertised on this page use Information Center, page 21.

NWAHACA To Build New Illinois Research Home

CLEVELAND — Construction of Research Residence No. 4 at the University of Illinois on a $40,000 budget will begin this spring, the board of trustees and Research Advisory Council of National Warm Air Heating and Air Conditioning Association announced.

The house will be completely furnished and instrumentated so testing can be as complete as possible. First heating investigations will be conducted next winter (1958-59) and first cooling studies in the summer of 1959.

Research Staff will investigate such problems in the tri-level home as air interchange between levels, drafts, seasonal load variations on each level, heating rooms over a garage, etc. Each will be tested on both a seasonal and year-round basis.

P-H-C Group

Names Wicks Bureau Executive Director

CHICAGO — Norman Wicks has been named executive director of the new Plumbing-Heating-Cooling Information Bureau, it was announced by W. A. Landers, president of the bureau.

N. Wicks

For the last two and one-half years, Wicks has served as manager of advertising and sales promotion for General Precision Laboratory, Inc., Pleasantville, N. Y., manufacturer of closed-circuit television systems.

From 1948 to 1955 he was associated with the National Electrical Manufacturers Association. With NEMA he served in various capacities, including assistant to the managing director, manager of the Defense Production Project during the Korean War, and manager of the business development department and the National Adequate Wiring Bureau.

Humidifier Sales Kit Offered To Contractors

CLEVELAND—The new 1958 humidifier sales promotion kit is now available, according to Morris Margolis, secretary of the Humidifier Association here.

The kit is designed to help the heating contractor realize the profit potential of the humidifier as a heating accessory, it was pointed out. In the kit is an illustrated folder which explains the market possibilities of humidifiers, and the sales points which have proven most effective.

Others items in the kit are two sizes of newspaper advertising mats which can be used by the contractor to obtain leads from prospective customers. Also included are instructions on how to make a mailing to get leads for humidifier prospects.

The kit is free and can be had by writing The Humidifier Association, 20211 Harvard Ave., Cleveland 22, Ohio.

Wisconsin Heating Men Meet Feb. 24

MILWAUKEE—Annual two-day convention of Heating, Piping & Air Conditioning Contractors Wisconsin Association in the Plankinton hotel here will feature Bob Forte as kick-off speaker at a luncheon Feb. 24. He is a former Green Bay Packers football player and now is sports relations supervisor of Miller Brewing Co.

Other speakers include Joseph H. Spitzley, president of Mechanical Contractors Association of America, Inc. and Lloyd Gruman, secretary of MCAA, according to the announcement.

A panel discussion on licensing heating contractors and Better Heating-Cooling Council's new film on heating and cooling also will be presented at the meeting.

Wholesaler Named President of No. Calif. Warm Air Group

SAN FRANCISCO—Board of directors of Warm Air Heating Institute of Northern California at their annual meeting elected Emery Lillard of Walnut Creek president for 1958. He is owner of Lillard Co., wholesale heating and cooling distributor.

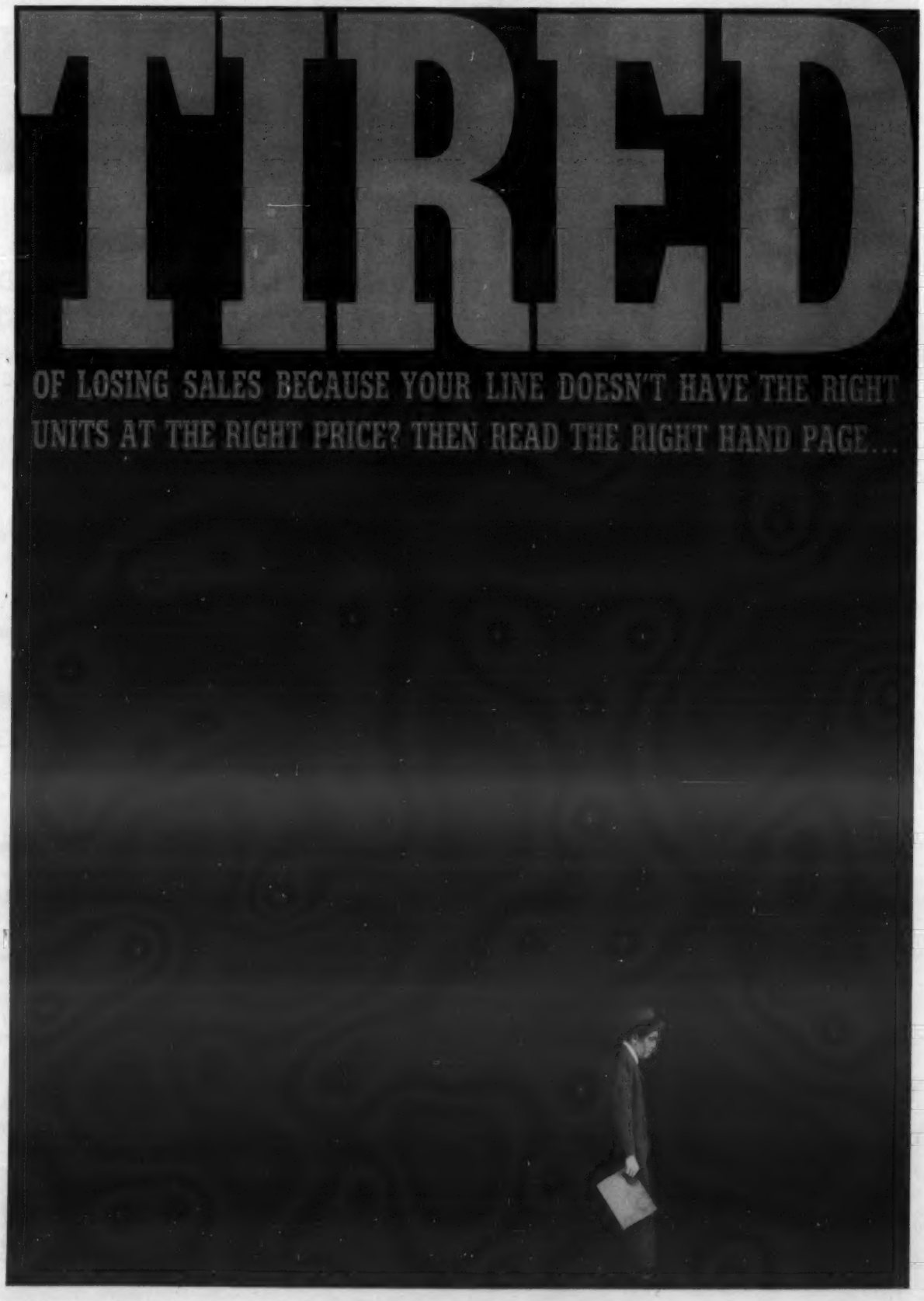
Tom DeVol of Stockton, president of Tom DeVol Co., heating and air conditioning contractor, was elected vice president. Dar Knowles was re-elected executive manager and corporate secretary of the association.

The institute's stamp plan continues to be successful and close to 100% effective in northern California, it was reported.

The board adopted the 1958 budget, selected a new advertising agency, and discussed plans for a moving picture film on heating and air conditioning to be used at home shows, fairs, clubs, and civic group meetings.

A plan for a joint publication with the Institute of Heating & Air Conditioning Industries of Southern California was discussed.

DIRECTOR'S BOARD of Warm Air Heating Institute of Northern California adopts 1958 program to promote the industry. "Stamp Plan" makes the budget possible. Seated clockwise from left are: Glenn Barnes; Tom Wright; Gale Dunn, executive manager of Sheet Metal Contractors Association of Sacramento; Emery Lillard, president; J. J. Howell; Dar Knowles, executive manager; James F. Deane, Tuck-Aire Furnace Co.; Fred Baciocco; Roland R. Taylor; Claude G. Bobo; Steve Ish; Stanley F. Skafte; Tom A. DeVol, vice president; and Joseph R. Boudreau. Standing: Merrill Pollard; S. W. Terry, Sr.; and Mose Hachigan of Fresno Sheet Metal.



For more information about products advertised on this page use Information Center, page 21.

In 1957

Philadelphia Area Distributors Sell 45,834 Room Units

PHILADELPHIA — Distributor air conditioner sales to dealers in this area last year dropped to 45,834 from the preceding year's 52,024, the Electrical Association of Philadelphia reported.

Freezer sales for the year also dipped somewhat from 6,424 in 1956 to 5,402 last year.

Refrigerator sales by distributors in 1957 amounted to 33,052 and combination refrigerator-freezers totaled 26,214 for a combined total of 59,266 as compared with the previous year's 66,487 when no differentiation was made between the units.

Distributors Offer Incentives To Induce Dealers To Order Air Conditioners Early

DETROIT — Distributors around the nation are or were offering incentives to dealers to purchase 1958 air conditioners early.

For example, in New York City metropolitan area inducements include programs for buying back units at a specified date, additional points toward trips, and dollar cost reductions.

Inducements by those distributors offering them are contingent both on original purchase date and date on which the dealer takes possession. Many programs are tied-in with factory plans.

New York Distributing Div., Inc. of Admiral Corp. offered a $75 "early bird" allowance and a fall trip to Havana for one based on 31 pieces ordered by Feb. 15.

Carleton-Stuart Corp., Carrier Corp. distributor, has tied-in with the national return privilege program which allows the dealer who buys 25 or more room units at one time to return to the distributor up to half of the air conditioners remaining on hand Aug. 1.

Coolerator New York, distributor for Lonergan Coolerator Div., McGraw-Edison Co., lets the dealer get a percentage reduction on whatever units he takes by April 30.

Hotpoint Appliance Sales Co., tied-in with the national program provides that 30 air conditioners bought in February earn a dealer one trip to Nassau this October, with a requirement of 35 purchases in March and 40 in April to qualify for the trip.

Krich-New Jersey, distributor for Whirlpool Corp., offers a "night on the town" including dinner at Toots Shor's, seeing a theater production, and visiting the Copacabana night club on March 8 for dealers who buy any six units and who were not guests at the New Year's Eve party in the Latin Quarter.

L&P Electric Co., Fedders-Quigan Corp. distributor, offers dealers for a limited time only $30 off on suggested prices of heat pump models, the amount to be determined by the original purchase.

A dealer who orders 15 units gets $30 off on two units, one who orders 60 gets $30 off on five, etc.

W. R. Light & Co., Gibson Refrigerator Co., Div. of Hupp Corp. representative, has an early bird special price allowance of $15 a unit on air conditioners taken before June 1. A trip to Havana, sponsored by Gibson, requires 60 units ordinarily, but on purchases prior to June 1 the same number of units entitles the dealer in the Light territory to two trips. A January order taken before April 1 brings a 20% bonus.

Warren Connolly Co., Inc., Norge Div., Borg-Warner Corp. distributor, plans to give twice the number of points toward a trip to the Dominican Republic on air conditioners which were ordered before Jan. 31 and taken by April 1. Certain '57 models also come under this program. Dealers will be allowed to return July 1 half the number of 1958 units on their initial order.

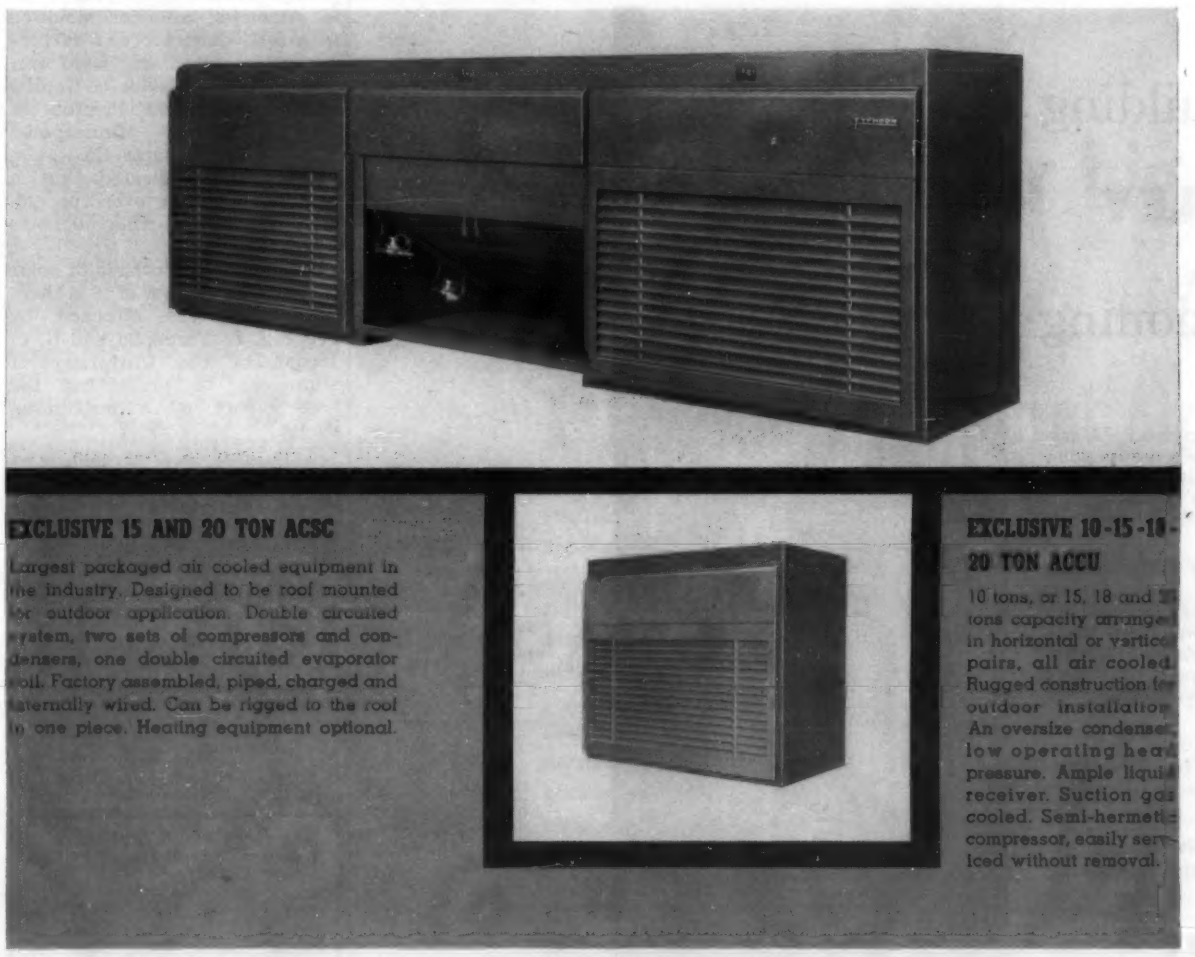
Vornado Distributing Co. of Baltimore, O. A. Sutton Corp. representative, has begun a preseason room air conditioner promotion enabling dealers to qualify prior to May 1 for a four-day trip to Monticello, N. Y.'s Hotel Concord. A specified number of units must be bought with various models carrying different values for a "Play Money" award which will be used in a "Monte Carlo Night" and may be redeemed for over $1,000 in merchandise awards.

Florida Room Unit Sales Rise 51% for 10-Month Period

MIAMI, Fla.—Top per cent increase in unit sales for the first 10 months of 1957, compared with the like year-earlier period, in the area served by Florida Power & Light Co. was recorded by room air conditioners with 51%, the utility announced.

Sales of air conditioners to dealers in the area totaled 1,546 last October, a slight slide from the 1,577 of the same 1956 month, but boomed to 43,598 for the first 10 months over the 28,824 of the like 1956 period.

Dehumidifier sales also climbed steeply to 567 for the first 10 months over the 266 of the same 1956 months, the utility reported.


EXCLUSIVE 15 AND 20 TON ACSC
Largest packaged air cooled equipment in the industry. Designed to be roof mounted for outdoor application. Double circuited system, two sets of compressors and condensers, one double circuited evaporator coil. Factory assembled, piped, charged and internally wired. Can be rigged to the roof in one piece. Heating equipment optional.
EXCLUSIVE 10-15-18-20 TON ACCU
10 tons, or 15, 18 and 2[illegible] tons capacity arranged in horizontal or vertical pairs, all air cooled. Rugged construction for outdoor installation. An oversize condenser, low operating head pressure. Ample liquid receiver. Suction gas cooled. Semi-hermetic compressor, easily serviced without removal.

BUILD A BETTER BUSINESS WITH TYPHOON

The most complete line of packaged air conditioners in the industry! Air cooled units from 2 tons to 20 tons, both packaged and as split systems. Water cooled units from 3 tons to 60 tons. Packaged water chillers, 2 tons to 50 tons. Air cooled-condensing units to 20 tons, water cooled to 60 tons. For residential, commercial and industrial installations, Typhoon has the size, the model, the price for every job you bid for. And that's not all. Units like the ones shown above are part of Typhoon's line. Your competitors haven't got them because only Typhoon makes them! Typhoon's exclusive features give you sales versatility competitors can't match—like the H616SC, the only 60 ton unit with air discharge that can be placed at the front, back or on the top of the unit depending on how you want to install it! And Typhoon's direct factory service helps you solve any problem, close any sale, quickly, easily, profitably. For more business, for better business, write today for full information on a Typhoon franchise.

TYPHOON
DIVISION OF HUPP CORPORATION

Typhoon Air Conditioning Company
505 Carroll Street, Brooklyn 15, N. Y.

☐ Please send me full details about a Typhoon franchise.
☐ Please have your representative call on me.

Name_____

Address_____

City_____ Zone____ State_____

8B-1

Advantages of Using Solar Energy with Heat Pump For More Efficiency Explored In ASHAE Session

PITTSBURGH—Indicative of the increasing interest in solar energy for winter heating, especially in conjunction with a heat pump, four papers covering various aspects of the subject were presented at one of the technical sessions held by the American Society of Heating & Air-Conditioning Engineers during its 64th annual meeting here.

SOLAR HEATED OFFICE

There were discussions on the amount of solar energy available, methods of collecting it, using a collector with a heat pump, and a description of what is believed to be the first solar heated office building in the world, a 4,300-sq. ft. single-story structure located in Albuquerque, N. M.

This building combines a solar heat collector with a 7½-ton package water chiller that functions as a heat pump in winter and cools the building in summer, it was explained by F. H. Bridgers, D. D. Paxton, and R. W. Haines, consulting engineers.

OPERATING COST LESS

Although the first cost of this combination system was estimated at some $3,000 more than a conventional heating and air conditioning system, operating costs were considerably less: $78.46 for the winter of 1956-57 compared with an estimated $168.90 for a gas heating system, the authors said.

Admitting that "based on present fuel prices, a savings of this magnitude would not make the additional initial cost economically sound," the authors point out that "the trend of fuel cost increasing at a faster rate than electrical energy cost will probably continue, particularly in view of the possibility of atomic generated electrical energy.

"This," they claim, "could make a heat pump-solar heated system economically attractive in a relatively short time."

System used in this building involves flat plate collectors facing south inclined 30° from the vertical having a net collector area of 750 sq. ft. Collected solar heat is stored for nighttime and cloudy weather use in a 6,000-gal. insulated underground storage tank. The heat pump is automatically cut in by a space thermostat when the storage water temperature falls too low to meet heating requirements.

An evaporative water cooler serves as a cooling tower for the heat pump during summer operation and as a direct means of cooling the building during in-between seasons.

Heat is delivered to the occupied space through floor and ceiling panels and the air distribution system. Only the latter is used for cooling.

How solar energy may be used to assist an air-type heat pump during periods of greatest demand and aid in defrosting was outlined in another paper reviewing preliminary tests of a simple flat plate collector and storage system presented by Chester P. Davis, Jr. of the U. S. Department of Agriculture and Prof. Ralph I. Lipper of Kansas State college.

Results of the experimental setup showed an increase of air temperature available to the heat pump between 12° and 23°, and average increase of 17.5% in coefficient of performance, and a reduction of defrosting periods as much as 75% to 80%, it was explained.

Collector used in this experiment consisted of corrugated metal painted black on sheathing attached to studs, which were covered with a plastic film sandwiched between wire netting to limit deflection and billowing.

Storage of heat was provided by tin cans filled with water and having an expandable sleeve containing anti-freeze to prevent rupture of the cans.

'FOCUSING COLLECTOR OFFERS MORE EFFICIENCY'

A third paper presented by this technical session indicated that a focusing collector offered more efficiency in collecting solar energy than the flat plate collector.

Experiments employing a 6-in. diameter collector mounted in a 5-ft. diameter war surplus parabolic searchlight were outlined by R. G. Nevins of Kansas State college and Preston E. McNall, Jr. of Minneapolis-Honeywell Regulator Co.

They also indicated that a black body cover over the collector gave a further increase in efficiency.

Fundamental problem of solar energy—how much of it is there available — was attacked by Profs. J. L. Threlkeld and R. C. Jordan of the University of Minnesota in presenting the first report of a continuing study.

This problem, they said, is of interest not only to those trying to collect solar energy but the air conditioning engineer and installer who is trying to minimize its effects.

The concept of "clearness numbers" to indicate the amount of solar energy incident on the earth for non-industrial localities during clear days was outlined by the authors, but they indicated more study is needed for industrial localities. Studies will also be made to diffuse radiation.

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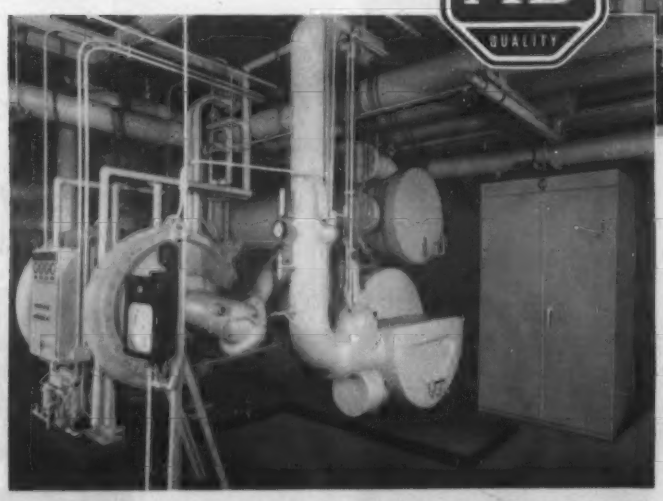
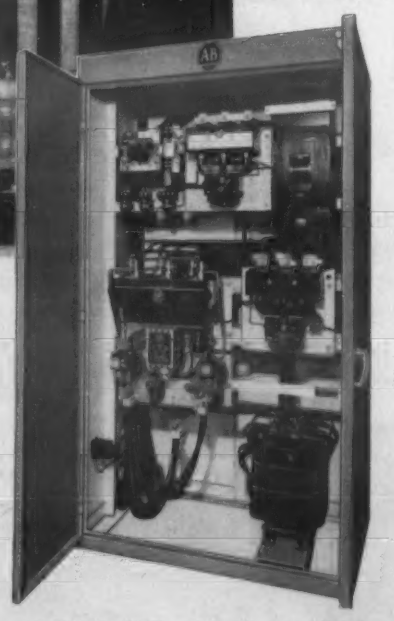


This 400-ton Trane air-conditioning unit is the first of four to be installed. Each will have an A-B Bulletin 1277 starter to operate the 440 v compressor motor. *Consulting Engineers:* Brooke & Choporis. *Air-Conditioning Contractors:* Gallaher & Speck. *Elec. Contractors:* Henry Newgard & Co. *Managing Agents:* Hogan & Farwell.



A-B Bulletin 1277 autotransformer reduced voltage starter used on the Chicago Board of Trade job. It has closed circuit transition with current limiting acceleration, and uses an I.T.E. circuit breaker for disconnecting.

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For more information about products advertised on this page use Information Center, page 21.

Park Ave. Apartment Gets Conditioning

NEW YORK CITY—A pre-war nine-room apartment at 800 Park Ave. here has been converted into a modern air conditioned suite with virtually no reconstruction by I. W. Air Conditioning Corp.

JOINS RECESSED UNITS WITH PLUMBING

By joining recessed heating and cooling units with existing plumbing, I. W. was able to complete the conversion in just 2½ days.

Only construction work involved was in making a small opening through the wall under each window.

In three of the four bedrooms only one layer of brick was removed and existing radiators replaced by air conditioning and convector units. In the fourth bedroom a combination unit with the heating coil in front of the cooling coil was used.

In the living room two cooling units were added to a convector that was already built into the wall.

USES WINDOW-SILL AS PART OF ENCLOSURE

Dining room posed more of a problem, as two existing cast iron radiators had to be ripped out. Then the new air conditioning unit and convector were put along one wall under separate covers, with the window-sill as part of the enclosure.

In the gallery, two cast iron radiators were taken out. The air conditioning unit was placed in the center with convector to the right and a dummy to the left.

A common enclosure, including the sill, makes the air conditioning unit appear as one compact unit.

All the units have thermostatic controls for both heating and cooling.

The enclosures, painted to match the wall, extend from the rough floor and form the window sills, thus eliminating small areas of plaster that often peel off or crack.

'Could Account for 65% of Market by 1965'

Sees Increasing Use of Electricity Booming Heat Pump Installations; Calls Water-to-Air Type Most Efficient

CHICAGO — "By 1965 heat pumps could account for 65% of the comfort conditioning market."

This was predicted by R. P. Cook, head of the engineering department, Typhoon Heat Pump Co., division of Hupp Corp., as he spoke to the annual meeting of the Refrigeration Service Engineers Society here.

SEES WATER 'MORE GENERALLY AVAILABLE'

"Fossil fuels are being used up, and cannot be replaced," Cook pointed out. "Electricity, on the other hand, will become increasingly available as new and efficient methods of generation are developed. Water, too, will be generally available as conservation methods are improved and as methods are developed to use sea water economically.

"Today there are some 15,000 to 17,000 heat pumps in service. The utility companies are metering and studying a great many of these installations, and they can supply the interested engineer or serviceman with information concerning performance and costs."

LISTS 4 TYPES

Pointing out that the basic principle of the heat pump was discovered over 100 years ago, Cook listed the four basic types of heat pump now available.

1. Water-to-air
2. Water-to-water
3. Air-to-air
4. Air-to-water.

The water-to-air heat pump is considered the most efficient, he said, and can be used wherever ground waters are available at temperatures above 40° F.

In the water-to-water system, water or brine is used as the secondary medium.

One of the major disadvantages of the water type heat pumps is that they cannot be used where the temperature goes below freezing without cumbersome equipment to prevent the water's freezing.

The air-to-air and air-to-water heat pumps, while not as efficient as the water-type, said Cook, find successful application where conditions warrant —such items as cost of electrical power, lack of ground water, and ambient temperature extremes must be considered, Cook stated.

He described briefly an "air well" in which cold air is drawn through layers of ground and can be held to a low of 50° F. even in colder climates.

"At first heat pumps had to be custom made from odd-and-end components," Cook continued. "The units were big and bulky. Now, more and more package-type units are available.

"Controls and components are being especially designed for heat pump use.

'THINK OF HEAT LOSS'

"The refrigeration serviceman is used to dealing with heat gain. He must now begin thinking about heat losses and related problems, because if he doesn't someone else will," Cook concluded.

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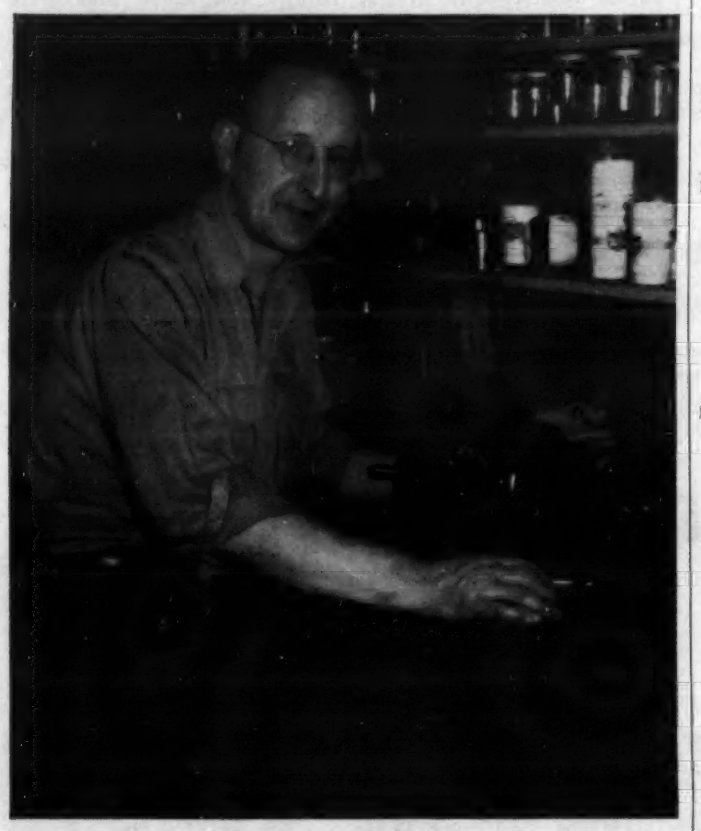
Centrifugal Air Conditioning Pumps

Construction Simplicity, Compactness, Steady Flow, Low First Cost, Maintenance, Long Operation Called Good Points

CHICAGO — "Centrifugal pumps, when properly installed and when given reasonable care, will operate satisfactorily for a long period of time. All manufacturers of pumps furnish a complete set of installation and operation instructions. The biggest problem seems to be to get the user or installer to read these instructions."

These points were made by H. Barclay, assistant manager, Industrial Div., Bell & Gossett Co., when he spoke to the annual meeting of the Refrigeration Service Engineers Society here recently.



Giving a brief history of the centrifugal pump, Barclay stated that there are several reasons why the centrifugal pumps are preferred over reciprocating pumps in water service. Chief reason, he said, is the simplicity of construction; the centrifugal pump is very compact and takes a minimum of floor space.

Further, the centrifugal pump produces a steady flow, rather than a pulsating one. And the centrifugal pump is low in first cost and maintenance, Barclay pointed out.

75% Within Range Of 500 G.P.M.

"While centrifugal pumps are available which operate at speeds of 5,000 to 6,000 r.p.m., the normal ranges covered by the refrigeration and air conditioning field are usually 1,750 or 3,450 r.p.m. Approximately 75% of all centrifugals sold are within the range of 500 g.p.m. flow rates or less and heads of 100 ft. or less.

"About two thirds of the industrial pumps sold are in the range of 1½-in. discharge sizes or smaller.

"The pumps normally encountered in the air conditioning field will be those classified as single suction, vertical split case types. Pumps mounted on foundations by the motor feet are called *close-coupled*. Those mounted to the foundation by a cast iron or steel base plate are called *base-mounted*."

3 Major Components

Listing the three major components of a pump as the motor, the bracket-seal-impeller assembly, and the body assembly or volute, Barclay emphasized the fact that the impeller *slaps* the liquid into the pump casing; it does not scoop the liquid as is normally thought.

"From the standpoint of noise," Barclay said, "the base-mounted pump will give the least trouble. Where noise is concerned, the bearings are important, and experience has shown that in lieu of ball bearings, sleeve bearings often overcome the noise problem.

"Another factor to be considered is the method of coupling the motor and pump shaft. In the case of the close-coupled pump, which is mounted directly on the motor shaft, noise is transmitted into the system through the motor shaft."

In discussing seals, Barclay cautioned that the conventional mechanical seals are useful up to temperatures of 225° F. Where higher temperatures are required, teflon is used—such seals being operative at 325° F. If any temperature above this are required, the manufacturer must be consulted.

'Air Causes Difficulties'

"Any air that finds its way into the pump casing or suction line will cause all sorts of operational difficulties," Barclay pointed out. "A proper sized foot valve on the suction side of

(Concluded on next page)

Trouble Shooting—Centrifugal Pump Operation

Reported Pump Operation	Possible Cause of Trouble	Method for Proving Cause of Trouble
I. PUMP DOES NOT RUN	a. Check for loose connections at the motor leads.	a. Test lamp method.
	b. Loose connections at motor starter box.	b. Test lamp method.
	c. Motor shorted out.	c. Use growler and watt meter.
	d. Proper electrical hookup for frequency that is available at incoming power line.	d. Check incoming voltage service against motor nameplate rating.
II. MOTORS CUTTING OUT	a. Thermal heaters too small.	a. Check rating of heaters against full load amperage of motor at operating voltage.
	b. Blown fuses.	b. Check fuse box.
III. NO DISCHARGE CAPACITY	a. Pump not primed.	a. Vent air from casing if on suction head or prime casing and suction line if on suction lift.
	b. Discharge head (static) too high.	b. Make physical measurement of elevation.
	c. Suction lift (static) higher than that for which pump was designed.	c. Make physical measurement of elevation.
	d. Impeller completely plugged.	d. Suction gauge reads static suction condition. Discharge gauge reads very low depending on discharge valve arrangement.
IV. INSUFFICIENT DISCHARGE CAPACITY	a. Air leak in suction system.	a. Use closed vacuum test at pump to prove air leak is not in pump.
	b. Total discharge head higher than anticipated.	b. Discharge gauge will show high reading.
	c. Impeller partially plugged.	c. Pump will be cavitating but suction gauge reading will seem to be very satisfactory.
	d. Restriction in suction line causing excessive friction loss.	d. Suction gauge will be reading a high vacuum condition and pump will be cavitating.
	e. Reversed rotation of impeller.	e. Check rotation of shaft for proper direction.
	f. Vortexing at suction sump inlet.	f. Observe sump conditions. Intermittent noise, casing may be vented of air. Suction gauge reading goes from normal to almost static head or lift reading.
V. INSUFFICIENT DISCHARGE PRESSURE	a. Reversed rotation of impeller.	a. Check rotation of shaft for proper direction.
	b. Pump casing airbound.	b. Low discharge capacity which increases when air is vented from casing.
	c. Cavitation resulting from poor suction conditions.	c. Suction gauge will indicate a high vacuum condition on cold water.
VI. LOSS OF SUCTION FOLLOWING PERIOD OF SATISFACTORY OPERATION	a. Air leaks in suction line.	a. Use closed vacuum test at pump to prove air leak is not in pump.
	b. Suction lift (static) too high.	b. Make physical measurement of elevation to determine any increase from normal.
	c. Foreign material plugging suction line.	c. If static suction conditions are normal, then when pump is reprimed and operated suction gauge will indicate a high vacuum.
	d. Air or gases in liquid.	d. Venting of pump casing will indicate air but closed vacuum or suction sump will not indicate air leaks or vortexing.

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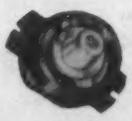

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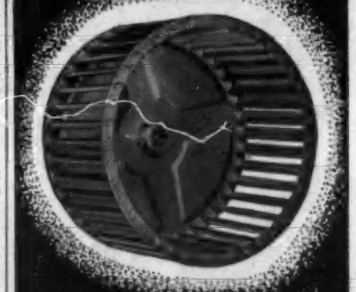

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Centrifugal Pumps-

(Concluded from preceding page)

the pump will avoid this difficulty.

"The foot valve must never be smaller than the pump's suction piping. This valve will hold water in the suction pipe and will eliminate the need for repriming after a shutdown.

"When thinking about friction or pressure loss, remember that in a closed system, where the water is recirculating, the pump is unaffected by static pressures and atmospheric pressure has no effect.

'Overcome Friction Loss, Static Head'

"On the other hand, in open systems where the liquid is recirculated and exposed to atmospheric conditions—as in a cooling tower application—the centrifugal pump must overcome not only the friction loss of the system, but also the static head, which is the vertical distance in feet between the free level source of supply and the high point of discharge.

"Another important factor is velocity. Velocities in heating and cooling systems should be held to 4 ft./sec. for pipe sizes up to 2 in. Over 2 in., 8 ft./sec. is permissible," he said.

"Generally speaking, if a system is not properly laid out, the most common fault is the use of an over-sized pump. This is undesirable from the cost standpoint, of course, but equally important is the fact that excessive water velocities will be encountered. Then, too, the over-sized pump will use more power than is necessary for the system."

Mfrs. Recommend Concrete Base

Describing the installation of a typical system, Barclay pointed out that manufacturers recommend a concrete foundation that weighs 2½ times the weight of the pump. This concrete block should extend into the floor, not rest on top of it.

"The foundation bolts should be embedded in the concrete and located properly by using a drawing or template," Barclay continued. A pipe sleeve about 2½ diameters larger than the bolts should be used to allow movement of the unit and the final positioning of the bolts.

"The coupling should be aligned with a straightedge across the coupling. This should be done on both sides and on the top and bottom.

"On the piping system, support the suction and discharge piping and line up the vertical piping so the flange bolt holes match the holes in the pump flanges. Don't try to spring the suction and discharge line into position or you'll have coupling and bearing wear.

'Lubricate Before Starting Pump'

"Before a centrifugal pump is started," Barclay said, "it should be lubricated. Then fill the pump and piping system with water, remove the air from the pump body by unscrewing the top plug. Turn the shaft by hand to allow all the air to escape."

"One of the most serious service problems is called *Cavitation*," Barclay stated. When the absolute pressure at any point inside the pump drops below the vapor pressure of the liquid, the liquid flashes and forms vapor bubbles. These bubbles are carried along to a higher pressure region where collapse takes place.

"The collapse is characterized by crackling noises and sometimes loud knocking. The force generated by this collapsing is often hard enough to gouge small pieces out of the impeller.

"Typical causes of cavitation are pumps operated below the design head, too low a head on the suction side of the pump, and too high liquid temperatures."

Recommendations To Combat Corrosion Offered In ARI Booklet

WASHINGTON, D. C.—"Corrosion and its Prevention" is the title of a new booklet just published by the Engineering Dept. of the Air-Conditioning & Refrigeration Institute for the industry and consumers.

The publication consists of a general discussion of corrosion as it affects the air conditioning and refrigeration industry, and includes information on atmospheric corrosion, corrosion of water circuits, and refrigerant circuits, and water treatment.

Also included is information on accepted industry practice and recommendations for combatting corrosion, based on experience gained over the years.

The publication was prepared by the Corrosion Subcommittee of the Air-Conditioning and Refrigeration Systems Section of ARI.

Gibson, Distributor Offer 10-Year Warranty on Refrigerators In N. Y. C.

NEW YORK CITY—A ten-year warranty on Gibson refrigerators in the New York metropolitan area was announced here recently by Gibson Refrigerator Co., Div. of Hupp Corp., and Speed Queen Atlantic Co., Inc., New York distributor for Gibson appliances.

"The action marks the first time a ten-year warranty has been applied to electric refrigerators," the announcement claimed. "Standard refrigerator warranties cover a five-year period."

The warranty plan was announced by William H. Leck, president of Speed Queen Atlantic, at a preview of the Gibson line before 400 dealers at the Park Sheraton hotel. The warranty program will be available for all franchised Gibson dealers in New York City, Long Island, Westchester, and northern New Jersey.

"The program is being tried in the toughest appliance market in the United States to test its value in selling Gibson products," according to W. C. Conley, vice president in charge of Gibson sales.

"Gibson-made 'Scotch Yoke' compressors are used in our refrigerators, and their service frequency rate is one of the lowest in the industry. Our world-wide performance experience on compressors for the sixth through the tenth year, and even beyond, prove this warranty realistic," he said.

Results in the New York-New Jersey area will be studied before a final decision is made on extending the plan.

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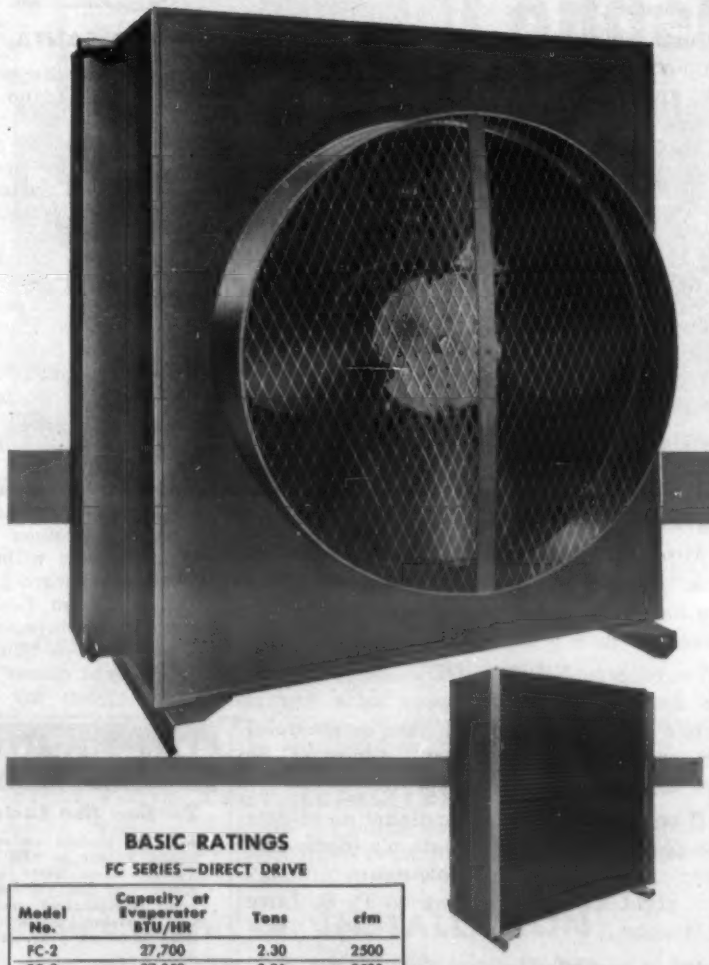

Now the famous Larkin Zephyrcon is available in two series: Direct drive FC models for economy and minimum maintenance, and belt driven BFC models for the lowest possible noise level.

FC models are available in 2, 3, 5, 8 and 10-ton capacities. BFC models come in 5, 8, 10, 16 and 20-ton capacities. All are engineered for parallel use to accommodate refrigeration or air conditioning systems of virtually any capacity. Multiple circuits are available for all models at no extra cost.

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FC SERIES—DIRECT DRIVE

Model No.	Capacity at Evaporator BTU/HR	Tons	cfm
FC-2	27,700	2.30	2500
FC-3	37,350	3.21	3500
FC-5	62,500	5.21	5500
FC-8	95,600	7.96	7500
FC-10	124,000	10.3	9100

BFC SERIES—BELT DRIVEN

Model No.	Capacity at Evaporator BTU/HR	Tons	cfm
BFC-5	62,500	5.21	5500
BFC-8	95,600	7.96	7500
BFC-10	124,000	10.3	9100
BFC-16	191,200	15.92	15000
BFC-20	248,000	20.6	18200

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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

They'll Do It Every Time

by Jimmy Hatlo

THIS IS A MODEL OF OUR JIFFO FILING AND MAGIC NOODLE FACT-FINDER—YOU JUST PRESS A BUTTON, AND OUT JUMPS ALL THE INFO RIGHT UP TO DATE! FOOLPROOF—TIME-SAVING—
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BUT GET A LOOK AT HIS PLACE OF BUSINESS—IF YOU CAN CALL IT THAT—
☆!%@!! WHERE'S THAT ORDER WE GOT FROM CHATTEL & CO.? ☆!% I KNOW IT'S HERE SOMEPLACE!
JIMMY HATLO
THANK AND A TIP O' THE HATLO HAT TO R.F.J. WILLIAMS, JR., 1515 WILSHIRE BLVD., OKLAHOMA CITY, OKLA.
1-1
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Tremendous Opportunity for Commercial Refrigeration

LAST YEAR frozen food display case space in supermarkets increased from an average of 55 sq. ft. to 76. *And floor space is precious in food stores.*

Why this increase in low-temp commercial refrigeration? *Answer:* Availability of more varieties of heat-and-eat frozen foodstuffs, plus consumer demand for them.

Perhaps the most salient feature of this jump of frozen foods display in supermarkets is the attention now being paid to prepackaged meat cuts (steaks, chops, roasts, etc.).

This is a development earnestly desired by meat packers, chain stores, and the commercial refrigeration industry—for obvious reasons.

Food retailers yearn for it because they're geared to self-serve *package* shopping (it goes with their miles of aisles of canned goods). Meat packers desire it to improve their frightfully low profit margins (less than one half a cent per sales dollar).

Furthermore, commercial refrigeration manufacturers and their dealers drool over the prospect of those probable leaping sales curves entailed in the concept of frozen packaged meat cuts—if that concept gets going.

How is this development (frozen steaks and chops—plus ready to eat plate dinners) faring?

Frozen meat divisions of big packing houses are vibrating with activity. Moving into the range of meats normally sold over the butcher counter, or from self-service cases in supermarkets, a few big packers now offer full frosted lines from breaded pork-chops to legs of lamb.

Swift, far in the lead, is marketing nationally a line of boned and trimmed beef, lamb, pork, and veal. Into its distribution system Swift is funnelling 55 frozen conventional cuts of dinner meats.

Incidentally, this mighty food-packing corporation shows every sign of being in the race for keeps.

Behind its program are millions of dollars in research, processing equipment, refrigerated trucks, plus a new building to house masterminds of the fledgling operation in Chicago.

Armour is following Swift's lead, albeit cautiously. Even though this firm now sells specialty frozen meats, it has sneered at their retailing possibilities in the past. Last year the mighty Armour did an about-face and launched a city-by-city merchandising program for a full line of this stuff.

L. B. Darling Co., a regional packer in Worcester, Mass., has achieved substantial distribution of its frozen red meat line using its special "Freez-O-Vac" process.

Darling's frosted products have met good reception. Near-national Rath Packing Co. of Waterloo, Iowa, is distributing frozen meat cuts to the institutional field with success.

Furthermore, Rath retails a line of "Chop-ettes" (boned and breaded veal, pork, and beef) to chain stores. Morell is freezing for the retail market, and Wilson and Cudahy are lab-testing frozen meats of specialty and conventional varieties.

Nowhere are frozen meats really competitive with fresh cuts, however, except in terms of convenience. Price is the big hurdle.

Nevertheless, packers point out that these items are boned and trimmed from 13 to 38%—so, bite for bite, they are a bargain.

After passing through the costly development stage, it is expected that packaged frozen "red meat" should sell at least 10% under local butcher prices.

Automating processing will cut shipping costs, eliminate shrinkage and spoilage, reduce handling charges, and convert "waste" trimmings into profitable by-products.

To repeat, EVERYBODY concerned in this deal wants it to happen in a hurry. There's just one bottleneck: the commercial refrigeration dealer who isn't aware of, or alert to, its amazing possibilities.

If only 10% of all prime dinner meat-cuts were package-frozen, our nation's foodstores would need 146% more low-temp refrigerators right away, according to P. B. Love of Armour.

What a challenge to commercial refrigeration dealers! It's up to them to show and sell local food emporiums on their need to catch up with this tremendous trend.

When 30, 40, 50—yes, and 90% of all meat cuts are frozen packaged—commercial refrigeration sales should multiply so astronomically that the commercial refrigeration business could leap several thousand per cent. The possibilities are fantastic.

DEAR SANTA, PLEASE FIX MY REFRIGERATOR

Refrigerative Supply Co.
Boise, Idaho

Editor:

The following is a copy of a letter received by one of our dealers from a customer. We thought it appropriate that a copy be sent to you.

Route #1, Box 150
Ontario, Ore.

Dear Mr. Santa Claus:

All I want for Christmas is my refrigerator fixed.

You know Santa Claus, that I have always tried to ask for practical gifts, and I do think this would be practical.

All through the pheasant hunting season when I had those six house guests here, it was quite a problem to serve them nice meals without a refrigerator, and when those four nice people from Seattle were here for three days and no refrigerator, and on Thanksgiving when I cooked dinner for fourteen and when my daughter came down from the cattle ranch and stayed a week with her three little children. It was so hard to explain to the baby, when she wanted her bottle in a hurry, that she would just have to wait until it thawed out.

If you just can't come out and fix my refrigerator, could you tell me where I can get two old fashioned orange crates?

Back in 1915 when we lived on homesteads out north of Vale, we made coolers by tacking burlap sacks over orange crates. We hung a bucket over it with a small hole in the bottom, and filled the bucket with water. The water dripped on the burlap and the evaporation cooled things nicely, but now days the grocer tells me all the oranges come in pasteboard boxes.

I'm getting desperate, so please Mr. Santa, won't you try to fix my refrigerator.

MRS. FRED TRENKEL

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Grant To Be Used

To Inform Prep Students Of Opportunities In Cooling, Refrigeration

LOS ANGELES—The Western Air Conditioning Industries Association has announced a financial contribution to California State Polytechnic college to further a new program of that institution.

In presenting the grant to the school, the association, through William P. Tennity, its president, expressed pleasure in learning the money would be used to disseminate the proper type of information to schools of pre-college level to give those preparing for college the accurate information as to the opportunities offered by the air conditioning and refigeration field.

'PUBLIC LACKING INFORMATION'

Tennity pointed out that the association felt there was a "sad lack" of information on the part of the public generally as to the wide scope of the industry and the many potential careers offered by it. He felt the type of program being planned by Cal Poly would do much to counteract this.

In accepting the grant, Dean Harold P. Hayes of Cal Poly stated: "Industries across the nation are competing for the occupational interest of young men and women whose minds can utilize higher education with a profit to themselves and to society.

'PROVIDE UP-TO-DATE INFORMATION'

"It is necessary, therefore, through a professional approach to educational counselors to provide up-to-date information on progress and needs of this industry which can be passed on to the young people and their parents."

Hayes emphasized that California Polytechnic graduates with a B.S. in engineering and major in air conditioning and refrigeration have worked in design, development, testing, sales engineering, contracting, and supervision of construction and maintenance, "fitting them for excellent positions and brilliant futures in an industry that is just beginning to grow."

WESTERN SHOW SET FOR MAY 7-11

The association sponsors the Western Air Conditioning, Heating, Ventilating, and Refrigeration Exhibit and Conference, this year scheduled for Shrine Exposition Hall in Los Angeles, May 7-11.

Tennity said that the firms who, by their participation in the exhibit, had made this grant possible should feel proud to have been able to contribute to the future of their industry.

Fred Tabery, exhibit manager, expressed enthusiasm over the association's action. He stated that with the continuing growth of the biennial exhibit he felt much could be done in the future to carry on this worthwhile program.

Cal Poly has completed plans to present a display relating to its air conditioning and refrigeration curriculum at the May Exhibit.

In Refrigerant-22 Systems

'Hold Oil Concentration Below 1% To Prevent Difficulty In Oil Return or Separation at -80°'

SAN LUIS OBISPO, Calif.—"In Refrigerant-22 systems little difficulty will be experienced with oil-return or oil-separation at suction temperatures down to -80° F., if the oil concentration in the liquid refrigerant is held below 1%."

This is one of the findings reported by Norman Sharpe and Howard S. Witmer of California State Polytechnic college here. The college conducted a series of tests with operating units to determine sources of difficulty in lubrication of refrigeration systems. Their studies were conducted with both R-12 and 22.

Pointing out that oil concentrations in the liquid refrigerant are sometimes as high as 25%, the report states that in either type system, the easiest way to reduce lubrication difficulties is to reduce the original concentration of the oil in the liquid phase.

In single-stage Refrigerant-22 systems the oil concentration may be kept low by separating the compressor crankcase from the suction vapor. This technique is common with ammonia compressors. The results with this method are almost as low as can be achieved with a discharge line oil trap.

On two-stage Refrigerant-22 systems, the study indicated that best results were obtained by the use of a single oil trap on the high-stage compressor discharging the separated oil back to its crankcase and the use of an oil equalizing line which allows the oil to flow back to the low stage compressor.

According to the report this arrangement permitted good equalizing of the oil levels in the crankcase, and the oil in the circulated refrigerant was about 0.8% at -80° F. evaporator temperature. The oil used in these tests had a viscosity of 300 SSU.

The danger of oil settling in the bottom of risers in a Refrigerant-12 system can be reduced greatly by the use of short turn ells at the bottom. Actually, the findings indicated that there is a greater danger of oil settling out of horizontal runs than in vertical risers.

The problem of line size and refrigerant velocities must be kept in mind constantly according to the report, but the use of a discharge line oil trap almost completely eliminates the refrigerant-oil stream in horizontal lines. The report suggests that such a trap be used wherever it is necessary to use reduced velocities in long horizontal lines.

Further study is needed to separate the many variables which may lead to unsuitable oil return in Refrigerant-12 systems, and investigators should describe fully their methods of investigation when reporting results, concluded the California State Polytechnic college findings.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

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TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Used Driers (3)

The last instalment listed some of the foreign items which are frequently found in used driers. Some are harmful, some are not—unless these latter are present in excessive amount.

Oil, for example. It is next to impossible to find a used drier which does not have *some* oil on the desiccant. This is expected and to a certain degree desirable, since a thin coating of oil on valve and control components is beneficial. While about 1% oil traveling with the liquid refrigerant is enough to do the job, it is not uncommon to find about 5% oil, and several authorities choose 10% as an arbitrary maximum.

But two drier manufacturers report opening driers and having oil pour out of them. Others report finding as much as 25% oil adsorbed by the desiccant.

When excessive oil is found in the drier, it usually calls for some sort of corrective action, whether it be installing an oil separator, checking line sizes and lengths, or reworking and replacing the compressor parts.

When excessive oil circulation is the only problem, the oil on the desiccant will be clean. If the desiccant is coated with a dark brown or black oily material, then we have the problem of oil decomposing somewhere in the compressor area, passing the discharge valve, and traveling eventually to the drier. (We're, of course, talking of liquid-line-mounted driers.)

Such extensively carbonized oil would indicate a high temperature very likely coupled with a supply of air.

OIL PROBLEM FROM EUROPE

One drier manufacturer received samples of black, oily desiccant from a foreign source. The correspondent stated that even though they could find no moisture or air in their units, one particular style of ice cream freezer compressor was causing difficulty with discolored desiccant. The units were located at several points around the country, so that it wasn't a localized problem.

The driers were periodically replaced and it was in this way that the discoloration was noticed; no actual operating difficulties had occurred. In fact, the very act of periodically replacing the driers prevents the plugging up of one with the resulting pressure drop.

The drier manufacturer reasoned that the specific design of compressor involved was generating excessive high temperatures as a normal operating characteristic. Although no operating difficulties had yet been experienced, it was recommended that an additive oil be used and/or that the oil be periodically changed to prevent fouling up controls and similar difficulties.

ALCOHOL ON A DESICCANT

The presence of alcohol on a desiccant is not an indication that anything is wrong in the unit. If alcohol were put in as a temporary anti-freeze, it merely means the drier has now taken over the moisture removal function. If the serviceman thought he was playing it doubly safe by using both alcohol and a drier, no harm was done although he wasted a little time and money, since the common desiccants will remove alcohol from a refrigerant as readily as they remove moisture. Thus, after the first few passes through the drier, the small amount of alcohol used would all be trapped in the desiccant.

Sludge is a loosely used term; while many people use it to refer specifically to solid products from oil breakdown, some use it to refer to any solid material which collects on a filter. In this latter usage, sludge may contain decomposed oil, chemicals, metals, and other solids.

In systems without a drier, of course, the sludge may gather in a control orifice or other critical opening. On a drier filter, the sludge does no harm so long as its amount is not great enough to clog the filter and restrict the flow of refrigerant. The finding of significant amounts of sludge in a drier, though, should make the alert serviceman wonder as to its source, and take whatever corrective action is indicated.

The use of an internal leak detector or highly colored dye which travels with the refrigerant, is considered quite convenient by many servicemen. If the same system, however, also contains a drier, the desiccant will remove the coloring matter. Therefore, if an internal leak detector is to be used for an extended period of time, meaning several passes of the refrigerant, it would be wise to bypass or remove the drier until the leak has been found.

The fact that the desiccant will remove the coloring matter from the refrigerant stream, of course, makes it impossible to depend upon an internal detector for permanent effectiveness if a drier is on the line.

Desiccants which have picked up leak detector will be brightly colored. Under most conditions, such coloration of the desiccant is no cause for concern; its moisture capacity has not been significantly reduced and—in recommended amounts—the leak detector itself is not harmful.

Any acids traveling with the liquid refrigerant will be stopped by the normal physical type desiccants and, at least to a degree, by the chemical type desiccants. On a unit which has been in service for any time at all, a small amount of acid or acid compounds will be found in the drier. It has been stated previously that there doesn't exist a system in which *some* corrosion or chemical actions have not taken place.

When large amounts of acid or acid products are present, however, the unit obviously needs looking at. The serviceman would probably find it difficult to determine from simple tests, just how much is too much, and he would have to rely on expert analysis.

On the other hand, if a simple acid tests shows what the serviceman considers to be large amounts of acid products, it might pay to take a quick look at the metal surfaces in the controls, or inside a valve, or even in a clean tube or fitting, if any of these are convenient.

Discolored copper (green) or iron or aluminum (both white to yellow) would indicate acid attack. In such a case, if nothing serious were wrong with a unit, a new drier or two would normally take care of removing any acid present, but the serviceman should then be alert to any future formation of acid which would indicate the continued entrance of moisture tural gas available at most into the unit.

By "acid products" or "chemicals" is meant the white, yellow, brown, or green powdery materials which find their way to the drier after they have formed during the reaction of some metal and acid. If they are present in considerable quantities in the drier, of course, there would be no need to look further into the system for evidence of acid attack.

COPPER DIOXIDE FREQUENTLY FOUND

Copper oxide is frequently found in a system where the joints have been silver soldered. During the high temperatures involved, the copper oxidizes to black copper oxide. Later, it flakes off and travels with the refrigerant until it meets some obstruction or is trapped in the filtering element of the drier.

Unless there should be enough copper oxide to restrict refrigerant flow, its presence poses no particular problem since it will normally be trapped either in the drier or in the suction line strainer.

Nevertheless, some servicemen take the trouble to prevent the formation of the copper oxide during silver soldering. Some do it by passing nitrogen through the tubing and fitting when they are being assembled. To avoid carrying around the nitrogen, some actually use natural gas available at most installations. They pass the gas through and ignite it at the outlet end, allowing it to burn continuously while the joints are being silver soldered.

Either gas serves to drive out air, so that the copper cannot oxidize even though the temperature is high.

(To Be Continued)

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FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG HOUSES

For more information about products advertised on this page use Information Center, page 21.

Furnace Shipped with Firebox In Place

———KEY NO. H-2412———

MEDINA, Ohio — Manufactured by Henry Furnace Co., a new design of assembled and wired oil-fired Moncrief winter air conditioner is shipped with the refractory firebox installed at the factory, instead of on the job.

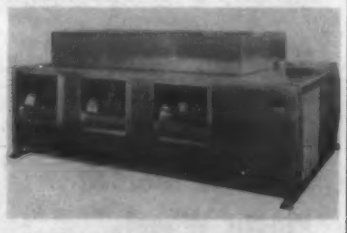
Available in two sizes, as either an upflow or counterflow unit, the new Moncrief oil furnace is heavily constructed throughout. The smaller size, with 0.70 g.p.h. input and 78,400 B.t.u. output, has a 16-gauge steel heat exchanger. The larger size, with 1.00 gals. input and 112,000 B.t.u. output, has a 14-gauge heat exchanger.

Unit Cools Water From Overhead Spot

———KEY NO. H-2413———

GLEN RIDDLE, Pa.—Refrigerated drinking water can now be furnished plant workers by a new cooling unit that supplies water to dispensing outlets from an overhead, out-of-way position.

New Sunroc RP-16C cooler meets largest industrial requirements, yet is small enough to be bolted directly to a plant column in an overhead location, it was stated.



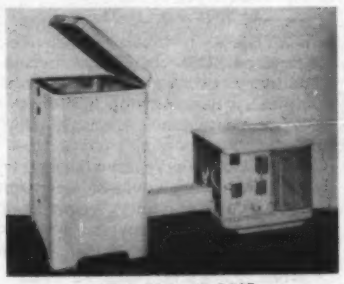
High Velocity System Units Designed

———KEY NO. H-2414———

LOS ANGELES—To meet the demand for air-handling units for use in high velocity systems, Recold Corp. has announced vertical, horizontal, and multizone units.

Special wheels, available as additions to the Recold "Standard" product, are Class I—forward-curved wheels, to handle applications up to 3½ in. static pressure; and a backward-curved wheel for applications up to 6 in. static pressure. The range of sizes available is from 2,350 c.f.m. to 29,000 c.f.m.

Low-Temp Box Has Remote Power Pack



———KEY NO. H-2415———

CINCINNATI—A 5-cu. ft. mechanical low-temperature metal curing unit with remote power pack has been developed by Cincinnati Sub-Zero Products.

Used for temperature cycling of critical initial guidance components for missiles and aircraft systems, new SV-70-5-R model is connected to the refrigeration power pack by a 2-ft. length of insulated 6 by 6-in. duct.

For more information on products shown on this page, please use Key Numbers and refer to "Information Center" blank on page 21.

Offers Regulating Valve

———KEY NO. H-2416———

GOSHEN, Ind.—A water regulating valve, the Penn 246, is now provided in all-range models, it was announced by Penn Controls, Inc.

Suitable for both R-12 and R-22, the valves are presently supplied in ⅜, ½, and ¾ in. sizes. All the same features of the series 246 are provided in the new all-range models.

New valves can be adjusted quickly with a standard service wrench or screwdriver.

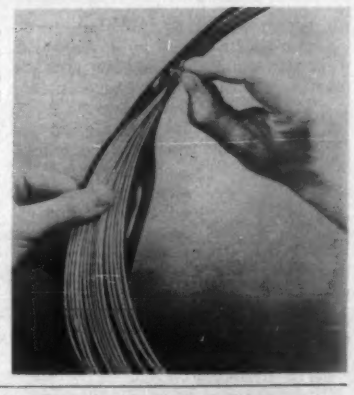
Duct Wrap Holds Insulation In Place

———KEY NO. H-2417———

LOS ANGELES — Announcement has been made by Zippertubing Co. of a new duct wrap that holds insulation in place, reflects heat, and provides protection against abrasion for heating and cooling pipes and ducts.

Use of the new product reduces installation costs up to 90% and provides reaccessibility to work points, providing a tough abrasion-resistant jacket for all types of heating and cooling ducts, it is claimed.

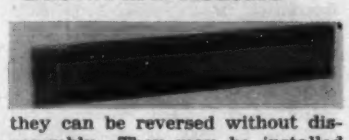
Zippertubing duct wrap is used to repair or replace aging insulation jackets.



Introduces 'Dual-Fin' Baseboard Heaters

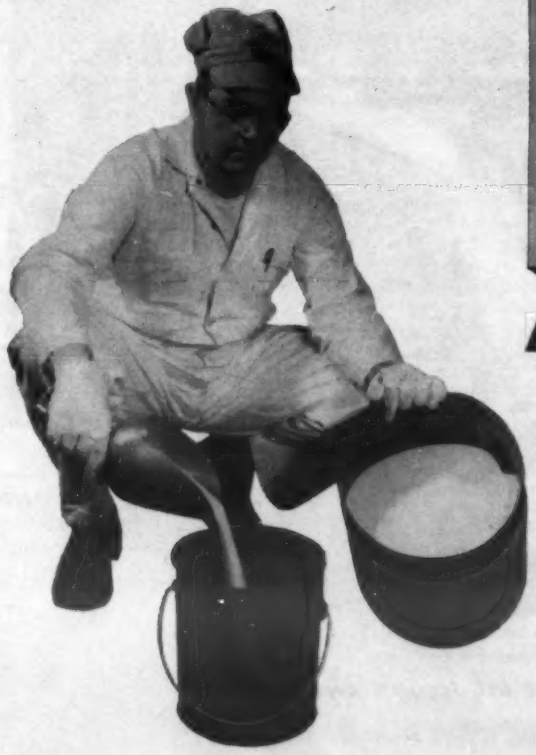
———KEY NO. H-2418———

BROOKLYN—"Dual-Fin" baseboard heaters, a complete economical heating system have been added to the Electrovector, Inc. line.



They have no top and bottom so they can be reversed without disassembly. They may be installed either side up.

For safer, easier equipment cleaning . . . DRY ACID CLEANERS based on Du Pont sulfamic acid



• Cleaning compounds based on Du Pont sulfamic acid are handled *dry*, until they are dissolved for use.

New cleaning compounds made with sulfamic acid are sold and handled *dry*—no hazardous liquids to ship or store. Dry, or dissolved in water for use, they create no fumes. Yet these cleaners have all the penetrating power of hydrochloric acid with far less corrosive effect.

Sulfamic acid-based cleaners remove scale and deposits from air-conditioning and ice-making equipment, food-processing vessels, steam boilers, milk evaporators and pasteurizers, marine evaporators and heat exchangers. Cleaning action is fast, thorough.

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E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., N2533, Wilmington 98, Del.

Please send me: ☐ sulfamic acid general equipment-cleaning bulletin; ☐ names of formulators offering cleaners based on sulfamic acid.

*Name*_____

*Company*_____

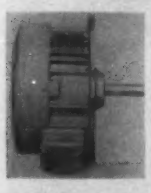
*Address*_____

*City*_____ *State*_____

Claim Pancake Motor Cuts Length to 60%

KEY NO. H-240

MILWAUKEE—Louis Allis Co. recently announced a new pancake motor claimed to reduce motor length up to 60%. It is designed for use on roof-ventilating fans and other space-cramped applications.



Pancake motor is flange type of conventional radial air-gap design. It achieves its short length, without any reduction in motor performance, through formed end coils and a one-piece housing-bearing bracket, it was explained.

For normal operating conditions it is built in an open drip-proof enclosure. Where dirt, filings, corrosive chemicals, coolants, or other contaminants are present, it is furnished in an enclosed construction.

Offers Delivery Truck Refrigeration Units

KEY NO. H-242

WATERLOO, Iowa—Truck Refrigeration Div. of Construction Machinery Co. has announced a completely new line of "Coldmaster" delivery truck refrigeration units.

Coldmasters have an all-electric system which provides uniform refrigeration capacity regardless of truck or engine speed. The all-electric system permits using readily available 110-v. single-phase current for standby operation, the company said.

Coldmasters are available in three types of mountings to fit any truck body: model RE 150 is a one-piece unit with out-of-the-way mounting which provides condenser cooling characteristics and protection from road dust and water. Also available as a two-piece unit on special order.

Model RE 150-B is normally furnished as a one-piece unit. Condenser and evaporator are both inside the truck body, with the condenser effectively insulated on all inside surfaces.

Washer Line Features 5 Wash Temperatures

KEY NO. H-241

ST. JOSEPH, Mich.—Five wash water temperatures and two agitation speeds provide full laundering flexibility in the new 1958 RCA Whirlpool "Imperial" model automatic washer introduced by Whirlpool Corp.

Wash water temperature is selective Hot, Med., Warm, Cool, or Cold. Clothes are automatically rinsed in 97° water. Washing time is selective both in the normal cycle at regular speed and in the shorter delicate fabrics cycle at slow speed. Infinite water level may be selected between 11 and 17 gals. Another feature of the new 10-lb. capacity washer is a built-in lint filter.

A matching gas or electric clothes dryer provides a special "Wash 'n Wear" cycle with an automatic 10-minute air-cooled fluffing period at the end of the drying cycle to prevent wrinkling. Preceding this cool-off period, air temperature is 165°. In the normal drying cycle for regular fabrics, infinite heat selection is thermostatically controlled with six automatic settings.

A durable new food waste disposer that can be installed by one man in less than a half-hour has also been introduced by Whirlpool. Styled with clean lines, two models which comprise the new line are finished in chip-resistant pink baked enamel with charcoal trim.

What is claimed to be the lightest full-power home cleaner on the market, carrying five cleaning tools in a concealed storage compartment, has been offered too.

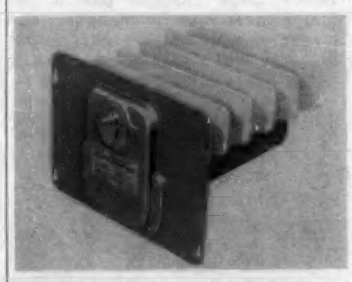
Adds 2 Compact Freezer Models

KEY NO. H-243

MANITOWOC, Wis.—Two compact new chest freezers, with capacities of 16 and 20 cu. ft., have been added to the Manitowoc Equipment Works' line.

New chests feature square styling, vacuum-tested cabinets, dry-wall condenser systems, and flexible "floating" lids with bridge-type construction and positive cold seal.

The 16-cu. ft. model holds 560 lbs. of food; the other stores 700 lbs. Respective lengths are 56¼ and 67⅛ in., but other dimensions are the same—height, 37 13/16 in.; depth 29½ in.



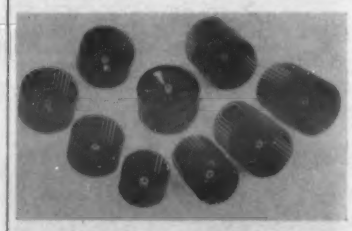
Humidifier Has 1 Moving Part

KEY NO. H-244

NOVI, Mich.—A new furnace humidifier has just been introduced by General Filters, Inc.

It only has one moving part, the valve actuator plate, which is not affected by the weight of mineral deposits. There are no floats or balanced pans to clog, stick, or overflow, the company explained.

Other advantages are claimed for this new unit. It will operate on water pressures from 5 to 150 p.s.i. without overflowing, or adjustment. It is installed simply by cutting a hole in the warm air plenum, installing four screws, and a water supply line. The valve seat is totally enclosed to prevent clogging.



Introduces Molded Plastic Wheels

KEY NO. H-245

INDIANAPOLIS — "Desco" molded plastic blower wheels, manufactured by Denbo Engineering & Sales Co., Inc., are now available in four different diameters, 5⅝, 6⅝, 7⅝, and 8 in., either as single inlet or double inlet types.

Being of one-piece, molded plastic blower wheel, they are aerodynamically designed; have a consistent close balance tolerance as well as control of all dimensions consistently less than assembled metal wheels, the company said. All dimensions are stable and can not be distorted or altered during shipping or assembly on a production line.

"Funny thing about these lab technicians. Some of them just naturally have what it takes to make a good grain-size checker."

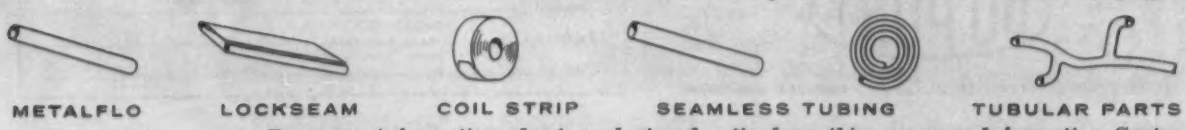
Originators and sole makers of METALFLO tubing

Expect the BEST brass and copper products from

H&H TUBE AND MANUFACTURING CO.

Laboratory control of grain size has always been routine procedure at H & H. Recording of the grain structure specified by each customer through the use of metal samples enclosed in clear plastic buttons—plus the use of its own Rockwell instruments to test temper—is your guarantee of tubing as *you* want it—completely free of any open grain condition.

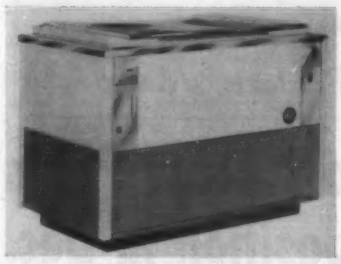
271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast



METALFLO LOCKSEAM COIL STRIP SEAMLESS TUBING TUBULAR PARTS

For more information about products advertised on this page use Information Center, page 21.

Produces 'LoBoy' Vendors In Three Sizes



——KEY NO. H-246——

NEW MILFORD, Pa. — Three sizes of 1958 selective vendors in new design are being offered by the Refrigeration Div., Brewer-Titchener Corp. located here.

Model LB-272 dispenses up to eight flavors, vends 136 bottles, and storage compartment precools up to an equal number. Model LB-168 dispenses up to six flavors, vends 84 bottles, and storage compartment precools up to an equal number. Model LB-110 dispenses up to five flavors, vends 55 bottles, and storage compartment precools up to an equal number.

BTC "LoBoy" vendors have a counter-balanced top for easier lifting. An efficient forced air cooling system is claimed to provide low cost operation.

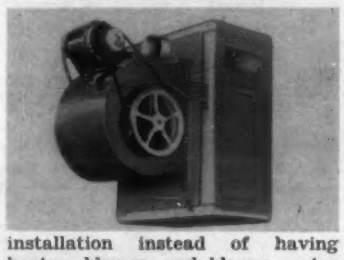
Modifies Blower-Type Gas Unit Heaters

——KEY NO. H-247——

MERCER, Pa. — Modifications for improved appearance, greater ease of installation, and an increased range of applications have been made in the series US-B blower-type gas unit heaters manufactured by the Reznor Mfg. Co.

All controls and connections are now concealed within the heater casing. For convenience in installation and service, the entire control assembly is located on one side of the heater, easily accessible through a large snap-out panel.

All heaters are now shipped completely assembled, ready for



installation instead of having heater, blower, and blower motor shipped in separate crates. It is estimated that factory assembly will result in a savings of as much as one hour per heater on installation time.

Range Highlights Built-In Cooking Guide

——KEY NO. H-248——

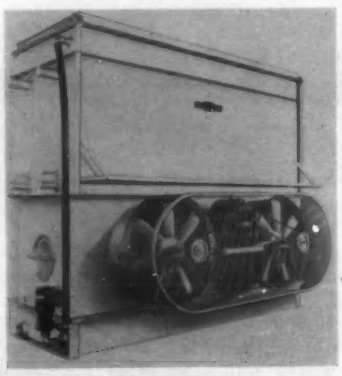
ST. JOSEPH, Mich.—A built-in cooking guide, infinite heat controls on all surface units, a "flash" surface unit which reaches maximum heat in 13 seconds, an automatic rotisserie with basting and skewer attachments, and a 24-in. oven are among the features of the new 30-in. range introduced by Whirlpool Corp.

Square-lined 1958 RCA Whirlpool "Mark XXX" model provides cooking instructions for over 90% of all oven-cooked foods. Eighty-two different dishes are listed on a revolving cylinder built into the mantle back of the range.

A radiant-heat combination barbecuing and broiling element, an automatic rotisserie, a built-in meat probe, a thermostatically-controlled surface unit, and a high-speed surface unit that heats in 13 seconds are among the new features of 1958 RCA Whirlpool built-in electric ranges.

Three ovens, two four-unit range tops with countertop controls, a four-unit top with front-mounted controls, and a two-unit top comprise the new line.

RCA Whirlpool's gas range has a wide assortment of new meat cooking facilities. A new automatic self-baster, which may be attached to the rotisserie spit, dips up juice or sauce from the drip pan below and pours it evenly over the meat. Individual skewer meals may be cooked easily with an exclusive, new "Ka-Bob" attachment. Five metal skewers fit into the rotisserie, and as the main spit turns, each skewer makes an additional half-turn.



Adds Industrial Water Cooler Line

——KEY NO. H-249——

BALTIMORE — Baltimore Aircoil Co. has announced a new line of industrial water coolers for closed system applications where process water temperatures are critical. With these units, BAC claims it is possible to save up to 95% of the water normally used for industrial cooling.

Complete line includes three styles: centrifugal fan draw-through units, centrifugal fan blow-through units, and propeller fan blow-through units.

Some of the applications of these units include cooling water for diesel or gas engines, air compressors, plastic molds, and other types of water jacketed equipment.

Develops Detachable, Reusable Fittings

——KEY NO. H-2410——

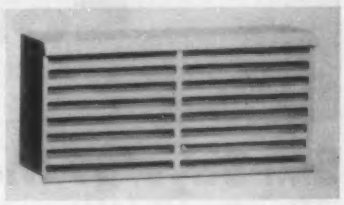
SPRINGFIELD, Mass.—New industrial fittings that are detachable and reusable have been designed and are being produced by Titeflex, Inc., a subsidiary of Atlas Corp.

Product designation for "Teflon" with reusable fittings is Springfield "140." The innercore is reinforced with a stainless steel wire braid, making it possible to withstand extremely high pressure. The hose is chemical and corrosion-resistant in a temperature range of -100° to 500° F., it was stated.

The reusable fittings are easily applied to Teflon and may easily be removed. No special tools or skills are required. Assemblies can be made in advance or in the field.

Expands Line of Aluminum Brick-Size Vents

——KEY NO. H-2411——



CRANFORD, N. J.—C-S modular brick size vents in cast aluminum, designed for stormproof venting of confined spaces, suited for air conditioning intakes are now supplied in an expanded line by Construction Specialties, Inc.

Seven brick vent sizes answer all construction requirements.

HASTINGS HOIST-IT

THOUSANDS OF USERS PRAISE THE "HOIST-IT"

ERECT A 4,000 LB. UNIT IN 57 MINUTES

SAVES MONEY, TIME, TROUBLE

- Raises up to 4,000 lbs., as high as 24 ft.
- Two men can erect a 4,000 lb. unit.
- The "Hoist-It" often pays for itself on one job.
- Completely safe. Easy to use.

HASTINGS HOIST-IT

IDEAL FOR ALL TYPES OF EQUIPMENT
Air Conditioners • Attic Units
Unit Heaters • Refrigeration Coolers

Write for Prices and Bulletin AC-28-H

HASTINGS AIR CONTROL, INC. 3215 Leavenworth Omaha 5, Nebraska

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

. . . . . .

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What's New or Current Literature Available

Key No. . . . . Key No. . . . . .

Key No. . . . . Key No. . . . . .

Key No. . . . . Key No. . . . . .

Key No. . . . . Key No. . . . . .

Name . . . . . Title . . . . . .
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Company . . . . . .

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City . . . . . Zone . . . . State . . . . . .

Type of Business . . . . . .

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AIR CONDITIONING & REFRIGERATION NEWS

Readers Service Dept.

450 W. FORT ST. DETROIT 26, MICHIGAN

FLOOR UNITS For CHILLED WATER

Solve Many Design And Installation Problems

HASTINGS Floor Units are ideal for existing buildings where serious disruption or excessive cost results from breaking thru heavy walls and floors for duct-work.

MODELS
Complete units as pictured — for direct discharge with 4-way air distribution grilles.
Basic units, less top section, for ducts.

CAPACITIES
Three sizes — from 3 to 15 tons. Air delivery 1200 to 5600 cfm.

COILS
All copper or aluminum fins. Highest efficiency for chilled or well water.

FEATURES
Insulated cabinets. Heating with hot water or steam. Quiet operation.

HASTINGS AIR CONDITIONING "The Finest Air Coolers"

Water coil and DX air handling units—Up to 24,000 cfm. Shipments from Stock on All Sizes.

Contractors and Engineers Write For Bulletin AC-317W

HASTINGS AIR CONTROL, INC. 3215 Leavenworth Omaha 5, Nebraska

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

SMI Says '57 Markets Average 80 Lineal Ft. of Meat Display

CHICAGO — New supermarkets opened in 1957 averaged 80 lineal ft. of fresh meat display cases, 18 ft. of frozen meats, and 72 ft. for frozen foods, the Super Market Institute reported recently. These figures appeared in SMI's fifth annual report about new supermarkets—those opened in 1957.

Fresh meat display cases were defined as all except frozen meat, poultry, and fish. Frozen meat cases included poultry and fish. Frozen food cases excluded meat, poultry, fish, and ice cream.

In 1956, new markets opened averaged 90 lineal ft. of display cases for meat and 77 ft. for frozen foods, including frozen meat, poultry, and fish.

Typical sales per lineal foot of fresh meat cases were $108 per week as against $100 per ft. in 1956.

Weekly sales per lineal foot of frozen foods case averaged $20, while for most meat cases the average was $44. A year ago, these two categories combined averaged $19 per ft.

Median length of display cases in stores of less than 10,000 sq. ft. of selling area, 10,000 to 15,000 sq. ft., and above 15,000 sq. ft. are shown in the following table:

Selling area (sq. ft.)	Average Length of Display Cases (Median) Meat	Frozen Meat	Frozen Foods
Up to 10,000 ..	60 ft.	12 ft.	42 ft.
10,000 to 15,000	80 ft.	16 ft.	68 ft.
Over 15,000 ...	111 ft.	24 ft.	95 ft.

Single copies of the report are available free to organizations concerned with efficient food distribution, according to Don Parsons, executive director of SMI. SMI headquarters are at 500 N. Dearborn, Chicago 10.

Dairy Group To Discuss Plans For Chicago Exposition In Dec.

WASHINGTON, D. C.—Plans for the 21st Dairy Industries Exposition will be discussed at the 39th annual meeting of Dairy Industries Supply Association April 10-11 at the Edgewater Beach hotel in Chicago.

Representatives from several hundred dairy supply and equipment firms are expected to attend the meeting, which also will feature a lottery for locations at forthcoming exposition.

Immediately following the opening luncheon, April 10, discussions will center on the exposition, to be sponsored by DISA Dec. 8-13, 1958, on Chicago's Navy Pier. The remainder of the afternoon session will be devoted to a survey of continued supermarket growth and its effect on the dairy industry, and a relating of economic fundamentals to industrial marketing by Dr. O. Glenn Saxon, noted business analyist of Yale university.

S. E. Crofts, Batavia Body Co., Inc., DISA president, will present an annual review of the association's activities at a banquet scheduled that evening. An address by Tom Collins of the City National Bank & Trust Co., Kansas City, Mo., will follow. Election of six directors for 3-year terms to DISA's 18-member board of directors will end the evening.

During the April 11 morning session, the space-locations lottery, by means of which exposition space is allocated to prospective exhibiting firms, will be held. The newly-reconstituted DISA board of directors will also meet and elect officers.

At the closing luncheon, some of the influences which recent scientific and technologic achievements are having upon dairy industrial processes and practices will be reviewed by Donald H. Williams, DISA staff technical director.

Tells Meeting

Potato Shrinkage Cut By Temperature Control

SAN FRANCISCO—Temperature control is one way to cut potato shrinkage up to 50% in a week, according to Norman Bolstad, buyer for Von's Grocery Co.

Leading a discussion at the recent United Fresh Fruit and Vegetable Association meeting here, Bolstad explained his store had been having a 4½% potato shrinkage "largely because of air check" although some of the damage was due to mechanical bruises.

Air checks are dents in the potato surface which detract from the appearance and tend to cause customers to reject them.

"In an experiment, we bought only cold potatoes that had been stored at 38-40° temperature. We maintained this temperature in our warehouses and when on display we cooled the potatoes as we do apples," he stated. "The plan was highly successful."

Bolstad also stressed the need for improved potato shipping containers. M. A. Ellison, buyer for Super Valu Stores of Minneapolis cited outmoded packaging and careless handling as causes for the decline in fresh potato sales. He suggested use of cartons instead of burlap bags for shipping.

Another Tyler first!

Announcing
the **NEW TYLER**
Sell-More Shopping Cart

Already in use by thousands of happier shoppers!

with **EXCLUSIVE LOWER SLIDE-OUT* BASKET!**

*Patents pending.

(Top, left). All these large, heavy items were loaded below . . . enabling customer to add many more to top basket. (Right) Unloading is faster, easier—no strenuous strain or squatting. (Bottom, left) Model T197. When not in use slide-out tray automatically retracts to angle position. (Right) Model T197F. Slide-out tray remains in fixed horizontal position when unloaded. Either arrangement permits perfect nesting.

MODEL T197

MODEL T197F

Speed checkout—boost volume of high profit impulse items—add new customer convenience with the sensational new Tyler Sell-More Shopping Cart featuring the exclusive, slide-out lower basket—*which slides out a full six inches to the rear!* Provides faster, easier loading and unloading, reduces frequency of high lifting of heavy items, encourages maximum loading of large, space-consuming, bulk items below, for more profitable use of top basket. No strenuous customer squatting and strain. No backing up to unload from front. Prevents confusion and delay at checkout. Send coupon today!

TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Michigan
Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ont. (Export: Tyler Refrigeration International, C. A., Apartado Postal 9262, Caracas, Venezuela, S. Amer.)

Send coupon today!

Tyler Refrigeration Corporation, Dept. AR-2, Niles, Michigan.
Rush data on new Tyler ☐ Sell-More Shopping Carts ☐ Sales-Cases ☐ Rolling-Cold Packaging Conveyors ☐ Walk-In Coolers ☐ Storage Freezers ☐ Reach-Ins ☐ Service Cases ☐ Condensing Unit Assemblies ☐ Shelving ☐ Color Compatibility System ☐ Store Planning
NAME_____
ADDRESS_____

For more information about products advertised on this page use Information Center, page 21.

Refrigerated Egg House Merchandises Fresh Eggs

BURBANK, Calif. — William Fredrick and Nathan Gilbert, operating Bill's ranch market, have developed a refrigerated "egg house" for the mass display and merchandising of fresh eggs.

Cartonned eggs are stocked in wire cases four rows high and tilted slightly upward to face the customer.

As the customers empty a case, a reserve one behind it can be moved into the front position and locked in place. A fresh case can be added at the rear.

The egg house cuts labor costs 50 to 60% and reduces breakage because individual cartons are not handled, according to Fredrick.

Your Customers' Best Buy. . .
(and yours, too!)
IDEAL
Speed-Freeze
PRODUCTS
BEVERAGE COOLERS unexcelled storage capacity with Ice Cube Makers
OUTSTANDING SECTIONAL METAL WALK-IN COOLERS
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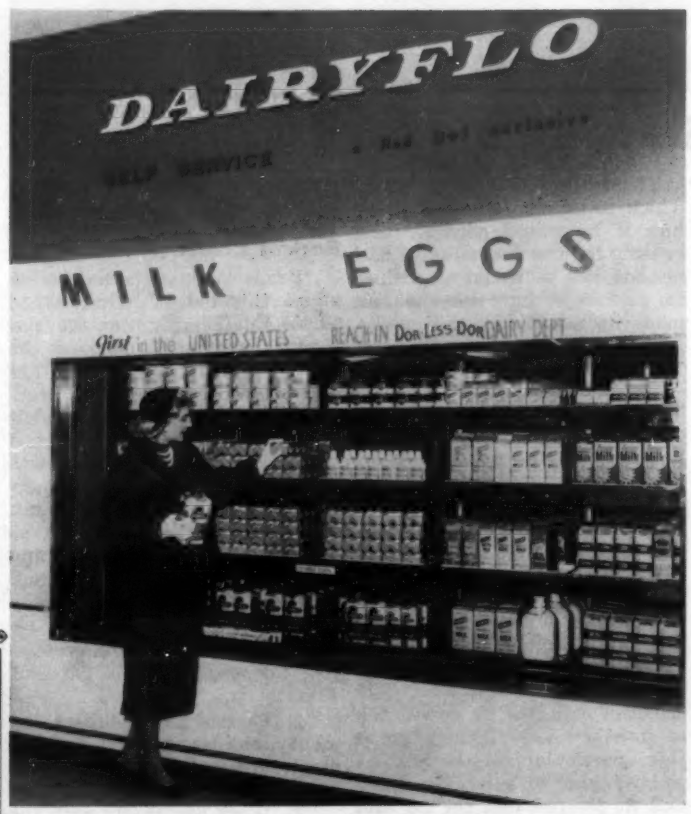

"DAIRYFLO" refrigerated dairy case by Red Owl Stores, Inc. features cooled air curtain instead of doors. This first one is installed in Red Owl unit in Madison, Wis. Just recently a second, improved with endless belt conveyors to automatically keep merchandise to front, was installed in St. Anthony shopping center unit.

Cases Have Air Curtains--

(Concluded from Page 1)

sive, according to Benham. It was developed by the company's construction and maintenance department, working in collaboration with Sulzer Bros., developer of the "Dor-less-Dor" and their representative in the midwest, Adrian Drew.

The St. Anthony Village store marks the second installation of a Dairyflo. The first was installed in the company's Madison, Wis. store. That one did not employ the endless belt method of stocking.

The St. Anthony Village store, claimed to be the largest supermarket in the upper midwest, covers approximately 30,000 sq. ft. It features a Dor-less-Dor air curtain entrance that sprays a curved flow of air down from a ceiling grille and sucks it through a floor grating.

The air, filtered, cleaned, and heated or cooled depending on the season, acts as an insulating wall protecting the interior from outside weather conditions. Yet customers—but not dogs or insects—can pass in and out freely.

MECHANIZED PACKAGING

Another feature of the store is a highly mechanized meat cutting and packaging operation where meat is practically untouched by human hands.

It represents the first practical application of results of a two-year study conducted by the U. S. Dept. of Agriculture and several food chains throughout the country — including Red Owl—to improve operating efficiency and simplify handling.

Incoming beef quarters are suspended from an overhead conveyor and stored temporarily in a huge meat cooler which has a capacity of more than 100 quarters. After being properly aged, the beef is handled by overhead conveyor to a disassembly line for processing.

AUTOMATIC WEIGHING

After being cut up, the meat is placed on trays, and carried by conveyor to an electronic computer scale where the packages are automatically weighed and labeled.

The finished products then proceed by conveyor to the counter for selection by the customer. More than 210 ft. of both overhead and wheel conveyor equipment is utilized.

The frozen food department is 150 ft. long.

Heating and air conditioning for the store was installed by Yale Engineers, Inc. and the refrigeration equipment by Allied Store Equipment Co.

Ratios of Products to Total Volume, 1949-1956: 1957

		1949 %	1955 %	1956 %	1957 %
1.	SD display cases, closed	7.3	2.6	2.2	2.1
2.	DD display cases, closed	15.3	5.4	4.3	3.2
	Total, this classification	22.6	8.0	6.5	5.3
3.	SD display cases, open SS	8.2	5.1	5.5	5.2
4.	DD display cases, open SS	17.6	9.8	9.2	9.8*
5.	Multiple deck display cases, open SS	..	11.2	11.7	12.4*
	Total, this classification	25.8	26.1	26.4	27.4
6.	All other display cases	1.6	.4	.6	.7*
	Total, all above types	50.0	34.5	33.5	33.4
7.	SD vegetables cases, open SS	9.0	5.9	5.9	6.7*
8.	DD vegetable cases, open SS	..	5.5	4.4	3.7
9.	Vegetable refrigerators, closed	.9	1.7	1.2	.8
	Total, this classification	9.9	13.1	11.5	11.2
10.	Low temperature refrigerators, open SS	13.9	29.1	31.8	30.8
11.	Low temperature refrigerators, closed	.5	.4	.4	.5*
	Total, this classification	14.4	29.5	32.2	31.3
12.	Upright freezers	..	2.4	2.4	2.4
13.	Dairy refrigerator, wall boxes, etc.	3.8	2.2	2.0	1.8
14.	Reach-in refrigerators	9.8	6.9	7.1	7.7*
15.	Walk-in coolers	6.5	7.0	7.4	7.9*
16.	All other C-R equipment	5.6	4.4	3.9	4.3*
		100	100	100	100

NOTE:—Asterisks denote products whose ratios increased over 1956. Government contract shipments excluded from all totals.

Ratios--

(Concluded from Page 1)

growing popularity of this type of refrigerated fixture.

Reach-in refrigerators were also up, emphasizing the improvement in the market for refrigerated food service equipment.

An increase was again registered by walk-in refrigerators, continuing a trend for a couple of years at least, and showing a revival of the market for an item which was once thought of being on the way out.

Closed display cases dropped again in the ratios. In the nine-year period that the ratio study has been carried out, the closed display case category dropped from 22.6% of the total in 1949 to 5.3% in 1957.

Double-duty vegetable cases of the open type also dropped in 1957, from 4.4 to 3.7% of the total, but dingle-duty vegetable cases climbed from 5.9% to 6.7% of the total.

A slight decrease was shown in the sales of dairy refrigerators and wall boxes.

Buckley Heads Sales At Pittsburg Corning

PITTSBURGH—Russell Brittingham, president of Pittsburgh Corning Corp., announces the appointment of Robert E. Buckley as general sales manager.

Pittsburgh Corning manufactures PC glass blocks and "Foamglas" insulation.

Formerly assistant to the vice president-sales, Buckley has been associated with the company since 1947, first as a sales representative and later as district manager of the firm's Philadelphia office, according to the firm.

Issues Cold Storage Door Catalog as Aid

HAGERSTOWN, Md.—A new 16-page catalog containing information to help architects contractors, and refrigeration engineers select and specify cold storage package passing doors and tunnels for all purposes has been issued by Jamison Cold Storage Door Co. here.

For Uniform Product Temperature
Cold-Cel
TRUCK PLATES
The "standard" for truck refrigeration
● FASTER PULLDOWN
● MAXIMUM HOLDOVER
● MINIMUM MAINTENANCE
AVAILABLE IN VARIOUS SIZES, THICKNESSES AND EUTECTIC TEMPERATURES
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Magical List?

What a Commercial Refrigeration Distributor Insists On Doing for Customer To Guarantee Good Service

CHICAGO—Good service?

What does that mean to you?

If it means only getting up in the middle of the night to fix a stuck valve or solving some other refrigeration problem, you are not seeing the whole picture.

It means much more than that, George A. Lucas, president of Allied Store Engineering Corp., East Hartford, Conn. told fellow commercial refrigeration distributors at the eleventh annual convention of the National Commercial Refrigerator Sales Association here.

What Lucas means by good service is revealed in this story he told:

"I was working on a prospect who had waited until the last moment before calling us in. When we arrived he was very excited and immediately wanted a layout for his newly-built building.

"In a matter of three hours I had measured the premises, taken out my drawing board and presented him with an intelligent well balanced store plan layout. He then asked if I would figure a price for him.

"I returned that night and gave him a price. He said he would like to think about it over the weekend and to see him Monday morning.

"I had performed SOME service for this customer, true. But all day Sunday I kept thinking that I had not been able to impress upon this individual what Allied Store Engineering could truly do for him. I had made a plan, had given him a price for equipment, but had not presented our complete program as we should have.

Jots Down List

"With that in mind, I sat down Sunday evening and jotted down a list of all the things that we felt we could do for that customer as well as or superior to, any of our competitors.

"The following morning at 8:30 when I walked into his store the customer looked at me with a slight trace of embarrassment and said, 'I am sorry, George, I can't give you the business.'

"I was stunned to say the least, but made no remark and he continued, 'I think I am going to give it to XYZ competitor from whom I have bought in the past and in whom I have the greatest confidence. He always gives me good refrigeration service any time of night or day that I need it.'

"I then asked him point blank if he had already given out the contract and he said no he hadn't, but he was going to give it out at 9 o'clock.

"That left 20 minutes in which to do something. I asked him if he would consider discussing it for a few minutes and he said yes he would be willing to discuss it but that he had made up his mind.

Sees Job

"So without further ado, I talked him into going out with me to see one of our jobs, as I had not had the opportunity of doing that the previous week.

"I also took out the sheaf of papers on which I had written the previous day, 'What Allied Store Engineering Corporation Can Do For You.' I showed him the heading only, not the items that were included.

"He was intrigued and curious at the list and asked if he could see it. I said yes he could look at it as we were driving up to this particular store that I wanted him to see. He agreed and we jumped into the car and while we were driving up I handed him this list.

"Every now and then he would say, 'Will you fellows really do this? Will you fellows actually do these things?' I had to reassure him many, many times that we not only would do them but we insisted on doing them as part of any job which we took.

"He was really tremendously interested in the items that I had written on this list and kept questioning and inquiring all the way to the store.

'Proud of Job We Had Done'

"When we arrived at the store, I turned him over to the owner of the store who was tremendously proud of the job we had done for him. For an hour and a half, believe it or not, the two of them were together, looking at everything from the cellar to the attic.

"When they had finished their interview I casually walked over and the last thing I heard my prospect ask, 'Well, do you really think that this equipment that you bought is absolutely the best for your use?' Without a moments hesitation our satisfied customer answered in the affirmative. I could see that he sincerely meant it.

"We left the store and my prospect by this time was visibly agitated, because, when I had walked in at 8:30 he had told me he could not give us the job. Now at 11:30 in the morning he was definitely thinking along more positive terms.

"I decided that it would be folly to take him back to the store as the competitor would be there and the whole job might become once again demoralized. Consequently, I stopped the automobile in the middle of a farm pasture somewhere in Connecticut, turned off the engine, turned to my prospect and said:

"Well, what do you say? You have seen the equipment. You have my list of what we will do for you. I believe you are convinced that what we offer is right. How about it?

He was under terrible tension and did not know how to make up his mind. He finally turned to me and waved the list I had written out. Mind you it wasn't typed up or neat looking, it was just as I had written it the night before.

"He said, 'If you will make this list a part of the contract, I will give you the job right now.'

Part of Contract

"I said, 'Val, shake hands, because this list of What Allied Store Engineering Can Do For You is not only part of the contract but our guarantee that our SERVICE will be the best.'

"Now you may wonder what this magical list was that I wrote. Gentlemen, it was nothing more than a summary of all the things which we not only offer our customer, but as much as possible, insist on doing as a part of getting a contract.

"I will read the items briefly as follows:

"What Allied Store Engineering Corporation Can Do For You.

"1. Present an intelligent and money-making plan for your new store in detail and in balanced proportion.

"2. Work accurately with the builder or owner of property to give the best in store and building design.

"3. Allied will assume all responsibility for making decisions that arise from now until the store is opened for business such as:

"a. Materials.

"b. Placement of partitions, etc.

"c. Electrical outlets and lighting fixture system.

"d. Type, color, and design of floor covering.

"e. Selection of colors and techniques of all interior decorations.

"f. Plan all drains for plumber.

"g. Relieve the owner of the need of continuous decision making caused by other journeymen involved. The owner will be left to operate his store with a minimum of interruption while all inquiries will be referred to Allied who will then make the correct decisions based upon years of experience and doing hundreds of jobs correctly without confusion or delay.

"h. Allied will layout and design front, back, and cellar areas for most efficient cost-cutting methods.

"i. A comprehensive and detailed grocery merchandise space allotment program will be drawn up with a complete review of how to use the adjustable Steel Shelving.

"j. A complete program for establishing the new Self Service Meat Department with emphasis on cutting, pre-packaging and displaying, rotating and coding meat, through the supervision of a Meat Expert who actually works in the store opening week, to be provided by Allied at the customer's expense.

"k. Work with paper suppliers, as to correct type and quantities of wrapping material.

"l. Arrange for all the best local rack jobbers and suppliers for Specialty and Non-Food Departments.

"m. Provide the owner with the most rewarding and money-making equipment today available.

"(We then use as many of the features as we can think of to best describe the equipment we sell in detail, so that it will indicate superiority over competitive equipment which might be considered.)

"n. Allied will provide for the owners of the store, a continuous source of comfort, guidance, know-how, progressive thinking, optimism, inspiration, friendliness, immediate service, and an unhesitating allotment of time and energy to help create for them a store which will not be only another store, but will be the outstanding retail operation in the area.

"It will provide for both owners and customers, a long term feeling of pride and well being, a harmonious combination of easy shopping and profitable working conditions; a store which will be an asset to the community, a money maker for many, many years to come.

"A store which will look and

(Concluded on next page)

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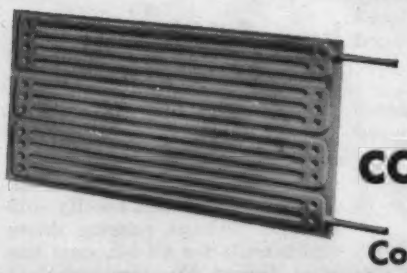

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For more information about products advertised on this page use Information Center, page 21.

What Distributor Offers--

(Concluded from preceding page)

feel new even when it is 8 to 10 years old, and be as close to perfection as it is possible to achieve so that continuous progress will be truly attained by the merchant.

"The strength of the investment will be fulfilled because of the power of the store and the high character of a healthy business.

'What We Truly Do for Customer'

"Gentlemen, that is the list as outlined to the prospect. There is absolutely nothing new, original, or startling, except that we try to incorporate all of these ideas in presenting them to the customer, so that he will know truly what we do for him.

"How many times can we recall that we have tried to leave off telling the customer some of the things we do because we presume he knows them. We can presume nothing of the kind.

'Tell Each Prospect What He Can Expect'

"Each prospect is entitled to a complete and thorough, honest review of what he can expect from doing business with your company because it is too much to assume that he will presume certain things.

"In addition to the above mentioned list we also have a schedule called a Profit Proposal in which we can prove that our service and equipment are a better value properly used by the customer.

"It begins with, Question: 'Is the price lower than the competitor's price?' Answer: 'No, the price is higher.'

"Then the figure is given, in this instance, $4,800 higher (on a $28,000 job).

"We then explain that this price differential divided by 260 weeks which is five years, amounts to something like $14 a week extra for our proposition over our cheapest competitor's.

'Benefits Exceed Extra Price'

"We can then prove beyond a shadow of a doubt that the benefits he will get from our proposition exceeds $14 differential many, many, many times over. And gentlemen, let me tell you those are some of the things we include under the heading of SERVICE.

Movie To Show How Market Is Created

"In addition, we are embarking on a new program in which we will have a complete 8mm movie to show how a supermarket is created.

"Pictures will be taken of the excavation, pouring of the foundation, erection of the sidewalls, putting on the roof, paving the outside, finishing the interior, bringing in the equipment, and then a flash-back showing how the customer came in, was shown the plans on our drawing board, and the signing of the order.

"Then the installation of the equipment, the stocking of the store by stages, and finally the grand opening and pictures of people coming in to buy.

"We think this will supplement our already extensive use of three dimensional photographs and 3-D viewers. These have been most successful.

"In addition, we offer aerial surveys of a proposed location for a store. This aerial survey has a tremendous impact on a customer. He can see what his prospects for doing business really are without just driving around and getting confused.

"In addition, we demand trips to stores by our prospect so that he can compare our equipment with other types of equipment.

"In other words, we do not show a prospect only the stores we have done, we show him the stores that *our competitors have done* and which other people have done with other types of equipment in there.

'Welcome Comparison'

"We welcome comparison of our program and equipment. We are not ashamed to show stores, even very good stores, which have been done by others. This reduces the tension and fear on a customer's part that we are exposing him only to our side of the story and that he will not have the full facts of all propositions.

"In conclusion, let me say that all of these services must be *sold* to the customer by the store engineer. They must be explained in comprehensive detail and they must be explained sometimes over and over and over again.

"Therefore, the training that our men must have, must be a continuing training, it must appeal to better calibre men and it depends completely on the highest calibre thinking, programming, and action."

A Salute...

to the men who install and service Hussmann equipment

There's many a VIP on the Hussmann Team . . . from those who design our equipment . . . to the men on the selling line.

But one thing for sure . . . none play a bigger part in the Hussmann success story than our distributors and the men who install and service Hussmann equipment.

We spend millions of dollars to create facilities for producing the finest refrigeration equipment.

Yet we know full well that your skill and workmanship add the final touch that assures the merchant complete satisfaction.

To you . . . the men in the field who add that touch . . . a salute from Hussmann.

HUSSMANN

Hussmann Refrigeration, Inc., Hussmann Building, St. Louis 6, Mo.

Hussmann Refrigerator Co., Limited, Brantford, Ontario, Canada

2-58

STORAGE AND DISPLAY REFRIGERATORS • CHECKOUTS • SHELVING • REFRIGERATION FOR FOOD STORES LARGE OR SMALL

Air Distribution Requirements In Year-Round Air Conditioning

15. Fundamentals of Conditioned Air (Cont.)

By Frank D. Klein, Chief Engineer, Governair Corp.

THE PROCESS OF COOLING AIR ATMOSPHERES AND INTRODUCING DEHUMIDIFICATION

It will be recalled from previous discussions that when an air atmosphere is cooled without condensation taking place the function as represented on the Psychrometric Chart is also a straight line function, but reading from left to right. This is true because if no condensation takes place the Dewpoint line remains constant. This, of course, becomes a process of Sensible cooling only.

Sensible cooling, however, is ever rarely the case in the cooling cycle for human occupancy. The ratio of Sensible to Latent Heat of course may vary widely in the home as compared with that encountered in commercial applications such as restaurants and supermarkets, yet there is always a certain Latent load that enters the cycle operation.

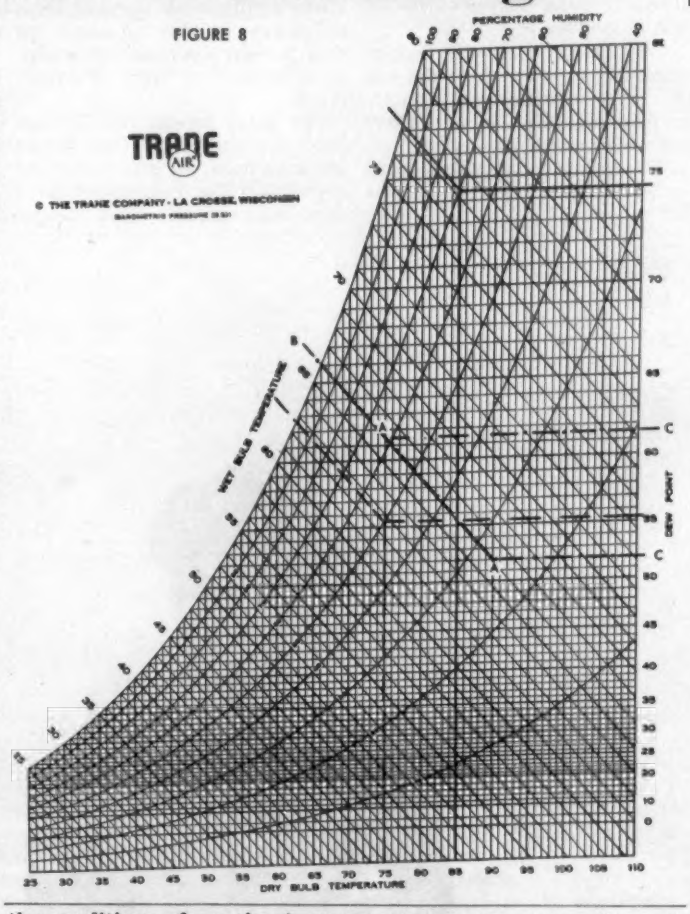
Refer to Fig. 8 and assume an air atmosphere whose characteristics originally are as follows: 85° DB, 77° WB. It is further found that these characteristics indicate a Percentage of Humidity of 70% and a Dewpoint of 74.5°. In changing these characteristics to, say 75° DB, 62.5° WB, it will be found that we will have (1) lowered the Percentage of Humidity from 70% to 50%, and the Dewpoint from 74.5° to about 55.2°.

Obviously in this change Condensation will take place, for this process is not one of maintaining a constant dewpoint temperature, but of changing it. Thus in this case we are both cooling and dehumidifying the air as represented by its original state.

The process of cooling and humidifying air atmospheres, of course, involves equipment familiar to those who at one time or another have been involved with so called "Air Washers." Adding humidity to air may of course be done with spray humidifiers discharging into the air atmosphere after the cooling process also, such as in the case of cooling coils, etc. In this latter case however contrary to the heating and humidification process the water so added must be *cooler* than the air discharged.

Because so called "air-washing" is more typical of this process, when it is required let us investigate circumstances and the conditions of an air atmosphere transformed from an initial state to a cooled and humidified state.

FIGURE 8


TRANE AIR
© THE TRANE COMPANY · LA CROSSE, WISCONSIN
PERCENTAGE HUMIDITY
WET BULB TEMPERATURE
DEW POINT
DRY BULB TEMPERATURE
25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110

In an air washer the source of water supply is neither heated or cooled, but is constantly recirculated. The Psychrometric function is once again a straight line function, but this time the straight line follows the Wet Bulb line on the Chart. Obviously, of course, the combined process of cooling and humidification is only possible when high sensible heat is to be dealt with, such as in very hot and dry climates and situations.

Refer once again to Fig. 8. Observe that the initial condition of the air atmosphere was 90° DB, 66° WB, and 52° DP.

It is to be changed to 75° DB, 66° WB. By passing the original air through a satisfactory air washing system, we would process in a straight line function via the constant Wet Bulb temperature to equal the same initial Wet Bulb; increase the Percentage of Humidity from approximately 28% to approximately 62%, thus raising the Dewpoint from 52° to approximately 61.5° as shown in Fig. 8 by points A-A, A-B, and C-C.

Air washing or cooling and humidification in such a process is based on the ratio of the lowering of the Dry Bulb Temperature to the maximum theoretical point of the Dry Bulb Temperature that could possibly be reached if the discharged air were saturated. When this would or could happen the Dry Bulb Temperature of the discharged air would be equal to the initial Wet Bulb Temperature before processing.

The foregoing examples are sufficient to illustrate the methods of typical psychrometric analysis. They are cited purely for illustration in order to explain the functions that psychrometrically take place in changing air atmospheres from one state to another only.

Just what these illustrations mean in practical application, using practical situations applicable to conditioned air supplies which the air conditioning engineer is concerned with in everyday design problems, will be illustrated by examples to be discussed in the next instalment.

(To Be Continued)

Edmund Copeland Dies After Lengthy Illness

DETROIT—Edmund J. Copeland, among the first to develop and produce a household electrical refrigerator, died recently in Detroit after a lengthy illness. He was 73.

Copeland organized the Kelvinator Co. in 1916 along with Arnold H. Goss. They developed and produced an electric refrigerator which had been conceived by Nathaniel B. Wales. Copeland was president of the firm.

In 1921 he left to form the concern which produced refrigerators under his name—Copeland Refrigeration Corp. Copeland developed a practical thermostatic control for a household electric refrigerator and a flexible seal which kept refrigerant from leaking.

* * *

Charles C. Limbocker, 76, retired president and board chairman of Wolverine Tube, Div. of Calumet & Hecla, Inc. died in his winter home at Bal Harbour, Fla. recently. He organized Wolverine in 1919 and built it to a firm which now employs more than a thousand.

* * *

Louis H. Miller, 62, retired General Electric Co. manager, died in Louisville, Ky. He had been marketing manager of the major appliance division before his retirement two years ago.

* * *

Wesley S. Leaper, district manager for Linde Air Products Co., Div. of Union Carbide & Carbon Corp., died in Cleveland recently. He was 57.

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For more information about products advertised on this page use Information Center, page 21.

Refrigeration Problems And Their Solution

(As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material and the NEWS is currently re-publishing it.

Building Up Pressure for Leak Testing (1)

The following described method of leak testing is sometimes used when it is difficult or impossible to get enough refrigerant pressure in the equipment or a part of it, to assure that the leak will show up, or for equipment that is too large for submerged testing in a tank of water. In this article the method will be described, and in a following article its relative merits and efficiency will be discussed.

This method consists of putting a low-pressure charge of Refrigerant-12, methyl chloride, or other refrigerant into the equipment, and then building up the pressure with carbon dioxide, nitrogen, dried air, or some other neutral gas, then going over the equipment for leaks with a halide torch, ammonia swab, sulphur candle, soap and water solution, or whatever method is suitable for testing the refrigerant used.

The essential steps of this method are:

(1) Pump at least a 20-in. vacuum on the equipment to remove the air, if the equipment has been standing open and may have moisture in it. Moisture should be removed so that it will not combine with the refrigerant to form acids in the system. If the piece of equipment is in use in the system, this step may not be necessary.

(2) Segregate the piece of equipment to be tested, from the rest of the system so that the CO_2 will not be mixed with the main refrigerant charge.

(3) Connect a cylinder of the refrigerant to the part of the system to be tested, and put in a refrigerant pressure. If the equipment, such as an evaporator, is cold, the refrigerant pressure may be low. It will be no more than the saturation pressure of that refrigerant corresponding to the temperature of the evaporator. If it is warm, a refrigerant pressure of 50 lbs. per sq. in. gauge (p.s.i.g.) will be enough.

(4) Connect a cylinder of CO_2 to it and build up the pressure to at least 100 p.s.i.g., or more if the strength of the equipment will permit.

(5) Go over every joint, whether made in the field or in the factory. Include the full runs of tubing; there may be a crack in one of them. TAKE NOTHING FOR GRANTED.

EXAMPLE: PLATE COILS IN A LOCKER PLANT

Suppose that we have a locker plant. The locker room itself has in it, four banks of plates connected to a Refrigerant-12 machine that has only the locker room on it. The temperature of the locker room is held at about -5°; the machine starts at about 5 p.s.i.g. and stops at about 4 in. of vacuum, which results in an average suction pressure of about zero gauge and an average plate temperature of about -21°.

We have been having moisture trouble. Every three or four weeks we have had one and sometimes two of the expansion valves freeze up. We take it off, dry it out, put it back, replace the dehydrator once or twice, and it finally clears up for another three or four weeks. We have written to the manufacturers of the machine and of the plates and asked them what to do. We have suggested that maybe we should put methyl alcohol in the system, for we have tested the job all over, time and again and we have not been able to find the leaks or leak that have let the moisture into the system. They have advised against the methyl alcohol, and have told us that we simply must find and repair the leak that evidently exists.

LEAK PROBABLY IN THE LOW SIDE

We decided that the leak must be in the low side of the system; probably in the connections to the plates, in the seams of the plates themselves; or possibly is a pinhole in one of the lines. We have changed and checked the expansion valves and we are convinced that the leak is not in them.

We realize that if the leak is a small one, it will be very difficult to find with the extremely low suction pressure. We cannot let the suction pressure build up by warming up the plates, for the locker room must be kept cold continuously.

Our customer is getting hard to get along with, and is making sarcastic remarks about our ability, and has protested our continuing bills. We don't blame him, and in fact we have done a lot of free work on the job for which we did not have the nerve to make a charge. The job has already cost us a lot more than we have ever got out of it.

BUILDING UP THE PRESSURE WITH CO_2 IS SUGGESTED

It has been suggested that we use CO_2 to build up the pressure of the low side so that we can find the leak. We have never used that method and are not sure that it will work, but in desperation we decided to try it.

After this one bank of plates is carefully tested, and we have either found a leak, or have satisfied ourselves that there is no leak in that bank, we are ready to either:

(1) Test the other banks, or (2) the temperature in the locker room may have gone up and we may have to run the machine for a while before testing the other banks, so we remove the CO_2 and Refrigerant-12 from this one bank of plates.

If we decide on (1) we simply open another pair of branch line valves to another bank of plates. When we do this, the pressure will drop to about 60 p.s.i.g., for we have increased the volume, so we can again bring the pressure back up to 100 p.s.i.g. with the CO_2 and test the next set of plates. We can either close the first pair of branch line valves or not, it makes no difference.

CO_2 MUST BE REMOVED

If we decide on (2), we leave the valves as they are, and pump a vacuum on the bank that we have tested. This done, we open all valves and put the system into operation.

To pump a vacuum it is best to use a vacuum pump:

(1) There is a possibility of "oil slugging" if the compressor is used, with danger of damaging the compressor.

(2) This time, we want to get just as good a vacuum as we can. A good vacuum pump can pump a much deeper vacuum than most compressors built for refrigeration service. A good vacuum pump can get within a few thousands of an inch of a perfect vacuum.

Variations in the types of systems, and in the way they are connected will cause variations of the method above described. Some men will have their own way of doing the same thing above described. The amount of time that the machine can be down will dictate variations in the method. For such equipment as condensers, receivers, evaporative condensers, water towers, and other equipment, higher refrigerant and CO_2 pressures can be used to good advantage.

(To Be Continued)

WHAT . . WHEN . . WHERE

— A Guide to Coming Events of Interest

National Electrical Manufacturers Association Meeting
March 10-13, Edgewater Beach hotel, Chicago.

Gas Appliance Manufacturers Association Annual Meeting
March 31-April 2,
The Greenbrier, White Sulphur Springs, W. Va.

Air-Conditioning & Refrigeration Institute Annual Meeting
May 4-7, The Homestead, Hot Springs, Va.

National Restaurant Association Convention, Exposition
May 5-9, Navy Pier, Chicago.

Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit
May 7-11, Shrine Exposition Hall, Los Angeles.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers and American Society of Refrigerating Engineers JOINT MEETING
June 23-25, Leamington hotel, Minneapolis.

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2-24-58

FHA Housing Applications Up In Jan.--

(Concluded from Page 1, Col. 2)

month and 75% over the first of last year.

FHA also reported a considerable easing of credit for housing. Half the 75 regional offices said there was an adequate supply of housing funds in January. Only 14% found credit adequate the month before.

This January pickup is accelerating at an even faster pace in February, according to the FHA. A decline in interest rates on mortgage loans has spread to practically all parts of the country. In nearly every case reported, current data in February tops the average week in January.

General pickup in private housing starts which began in the latter half of 1957 was extended into January, and amounted to an annual rate of 1,030,000 starts. This was a little better than the final quarter of 1957 and highest annual rate since last August. Majority prediction for the full year 1958 is approximately 1,100,000 starts as compared with 1957's 990,000 housing starts.

Calling for governmental aid to create a favorable home buying climate, Nels C. Severin, president of National Association of Home Builders, asked for extension of the GI housing program due to expire in July. He also urged empowering Veterans Administration to adjust interest rates on GI home mortgages, and a lowering of down payment requirements on FHA mortgages.

Down payments, he said, should be on a sliding scale calling for 3% on the first $12,000 of value, 10% on the next $4,000, and 25% on value over $16,000.

Along with FHA action, Federal National Mortgage Association increased its buying price of mortgages backed by FHA and the VA. In effect the agency upped the amount it will pay for VA-insured 4½% mortgages by 1½ percentage points. Prices paid for FHA-guaranteed 5% and 5¼% mortgages will go up in some cases by ½ percentage point.

This has the effect of freeing funds mortgage lenders have tied up in FHA and VA mortgages on the resale market so they can invest in new home loans.

Also intended to spur home building is a bill introduced in the House to create a home loan guarantee corporation to insure the top 20% of conventional home mortgages. A similar bill was thrown into the Senate hopper, too.

If enacted, the Home Loan Guarantee Corp. could guarantee home mortgages for any member of a Federal Home Loan Bank (also to be set up under the act) or any approved mortgagee upon terms and conditions set forth in the law. Mortgages eligible under the proposed law to be guaranteed "shall be first mortgages on homes designed for single family occupancy owned and occupied, or intended to be occupied, by the mortgagee, in an original amount not in excess of $20,000 amortized monthly for not in excess of 90% of 20% of the amount of such mortgage. . . ."

Condition Utility Bldg.

LOS ANGELES—Air conditioned throughout will be 13-story $2,250,000 headquarters office building of Southern Counties Gas Co. at Flower & 8th Sts. adjoining existing Southern California Gas Co. buildings.

Trane Starts Operating Heat Exchanger Plant In La Crosse

LA CROSSE, Wis.—A new $1.2 million manufacturing plant has commenced operation at The Trane Co. here.

The plant will be used to manufacture heat exchangers for multiple purposes including heat dissipation in guided missiles and jet aircraft.

The 76,800-sq. ft. production facility represents one of the final phases of a two-year $13 million Trane building and expansion program in La Crosse.

"Heat exchangers produced in the new plant will have widespread applications as components for systems designed to meet exacting requirements," it was explained.

"Defense uses include installations as part of systems cooling electronic components, cockpits, and engine oil in jet and turboprop aircraft, and for cooling purposes in connection with the government's IRBM and ICBM development programs. The new swept-wing B-58 Hustler supersonic bomber and mobile units that produce liquid oxygen, a fuel for guided missiles, are Trane equipped, as is the McDonnell F-101 jet fighter which recently set new speed records.

"The exchangers will also be used as part of the air conditioning systems for comfort cooling Convair's first '880' jet luxury airliners. Other jet transports which will use the exchangers are Boeing's '707' and the Fairchild Friendship.

"Trane units are components of systems which are used in the peripheral radar defense of our nation in the DEW (Distant Early Warning) Line. Closely associated is the use for cooling equipment on White Alice (Alaska Integrated Communication Exchange) which provides a microwave network linking isolated communities and defense installations across Alaska.

"In addition, Trane exchangers are used in test nuclear reactors. Other exchangers made by Trane are being used in related atomic energy applications. One installation is using banks of fin-and-tube coils to provide heat for a building. This heat is being drawn from a reactor and actually represents an early development in the use of atomic energy for comfort heating."

Carpenters Refused Injunction--

(Concluded from Page 1, Col. 4)

has refused to issue a notice of hearing because the National Joint Board of the Building and Construction Industry Dept. of AFL-CIO—set up for settling jurisdictional disputes between unions—has already adjusted the dispute involved.

However, Herman pointed out, the joint board has made a decision that was supposed to affect only one project and no other.

In this instance the board awarded the handling, setting, and connecting together of self-service refrigerated display cases to the carpenters.

The hooking up of drains and refrigerated piping was awarded to plumbers and steamfitters.

"Therefore," Herman said, "there is no further action pending before the NLRB and this firm does not intend to file a request for review.

"The joint board is endeavoring to have the carpenters and steamfitters unions negotiate this problem on a local level. At the moment, the two unions are supposedly endeavoring to work out an agreement.

"So far we have not been advised whether they have made any progress along this line or not.

"In sum, our efforts for a decision through the joint board, the NLRB, or even the local courts have failed to effect a jurisdictional decision and we are no further along toward settlement of this matter than we were two years ago."

York To Move Home Cooling--

(Concluded from Page 1, Col. 5)

Local *Herald and Review* newspaper quoted S. S. Meadows, M-S vice president and general manager, as saying some of the changeover from manufacture of Ford Motor Co. transmissions will be made while the transmissions are still in production. "It probably will take about six months to make the complete change and get in full production."

Last July 15 AIR CONDITIONING & REFRIGERATION NEWS reported Henry M. Haase, president and chief executive officer of York Corp., subsidiary of B-W, as stating "company officials are studying possible relocation of some manufacturing facilities." It was added that "a good part of Commercial Div. activities—primarily residential air conditioning systems—will be moved to Decatur, Ill."

Meadows indicated the changeover will cause a considerable increase in the engineering staff with advance engineering and research and development of York air conditioners and compressors being centered here. Some of the engineering staff will move from York.

M-S, now producing a small number of compressors for auto air conditioners, will also develop and make other items in the air conditioning field.

Richmond Blast--

(Concluded from Page 1, Col. 3)

the suit should other damage claims be filed. Two motions were filed—one asking permission to take depositions from witnesses and another which, if granted, would force the city to produce all of its records in connection with the explosion.

To support its damage claim, the company requested certain files from the city concerning nearby mains. The warehouse has no natural gas installations, but a main runs beneath the sidewalk alongside the building. The company contends natural gas was present both before and after the explosion.

Various officials had speculated, on the day of the blast, that it may have been caused by ammonia leaking from refrigeration pipes. But they agreed ammonia normally is not considered an explosive.

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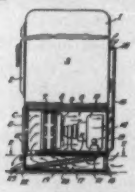
PATENTS

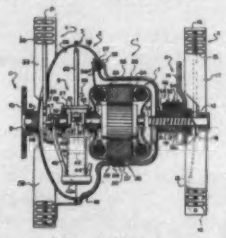
Week of Nov. 5 & 12

2,811,840. FILTERED DUCT IN REFRIGERATOR. Arthur M. Thompson, Chicago, Ill.



1. A filter mechanism for air conducting means comprising, in combination, an open-ended air duct provided with a branch air discharge opening and a drawer carried within said duct, said drawer comprising a walled chamber having an air inlet opening at one end to receive air from one of the open duct ends and an air outlet portion at the other end of the chamber for communication with said branch air discharge opening in the duct, said chamber being arranged to fit said duct whereby to bypass duct borne air therethrough, and screen filter members carried angularly crosswise of said chamber to clean air passing through said filter members. . . .

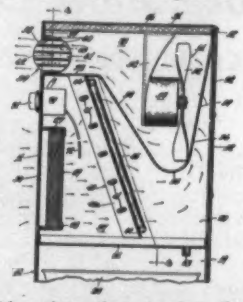
2,811,841. REFRIGERATOR APPARATUS. Charles S. Grimshaw, Erie, Pa., assignor to General Electric Co., a corporation of New York.



3. In a refrigerating system, a motor, said motor including a rotatably mounted stator, and a compressor driven by said motor, said stator being rotatable relative to said compressor and in accordance with the refrigerant load on said compressor by motor reaction to the driving of said compressor, a heat exchange element, means connecting said heat exchange element to said stator for rotation with said stator for varying the operating capacity thereof.

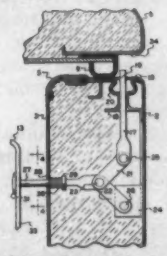
2,811,842. AIR CONDITIONING APPARATUS. Halsey W. Taylor, Warren, Ohio, assignor to The Halsey W. Taylor Co., Warren, Ohio.

1. Air conditioning means for removing moisture from the air in a room and for directing a stream of cooled air to a portion of said room, comprising a casing having an air inlet and an air outlet, a motor-compressor unit, an evaporator unit within said casing and in refrigerating circuit with said motor-compressor unit, said evaporator unit comprising an assembly including a first refrigerant conduit embedded in thermal conducting relation within a plurality of heat transfer fins arranged in edgewise relation with respect to the incoming air whereby air is cooled by passage thereover, a second refrigerant conduit positioned at the trailing edges of said fins and adapted to receive refrigerant which



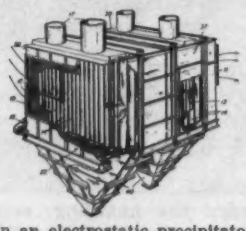
is colder than that passing through said first refrigerant conduit to chill the cooled air to its dew point. . . .

2,811,936. REFRIGERATOR CABINET DOOR STOP. Thomas P. Foley, Louisville, Ky., assignor to General Electric Co.



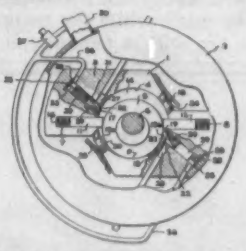
1. A refrigerator cabinet comprising an outer case and an inner liner with said inner liner defining a food storage compartment, a shelf disposed within said compartment, a door mounted on said case and providing access to said compartment, a door stop member movably mounted between said case and said liner and extending outwardly through said case, said stop member being movable between an extended position and a retracted position and being adapted when in said extended position to engage said door to prevent the closing thereof, means including a movable link for operating said stop member between said positions. . . .

2,812,035. ELECTROSTATIC PRECIPITATOR AND A COLLECTING ELECTRODE THEREFOR. Nils F. Sohlman, Chatham, N. J., Hugh Mullen, Port Washington, N. Y., and Henry C. Dohrmann, Westfield, N. J., assignors to Buell Engineering Co., Inc., New York, N. Y.



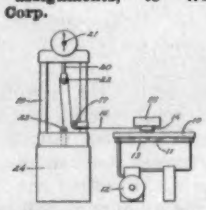
4. In an electrostatic precipitator for removing suspended dust particles from a gas stream, a housing through which the gas stream passes horizontally, parallel spaced rows of emitting electrodes, the planes of the rows lying in the direction of movement of the gas, and collecting electrode walls parallel to and intercalated with the emitting electrode rows consisting of flat electrodes attached to the precipitator at the top and bottom ends, each electrode having its trailing longitudinal vertical edge shaped in cross section like a semi-circle to form baffles on both faces of the flat electrode to catch particles near it traveling with the gas stream. . . .

2,812,122. ROTARY COMPRESSOR VALVE. Robert E. Bosch, West Caldwell, and Kenneth K. Cooper, North Caldwell, N. J., assignors to General Electric Co.



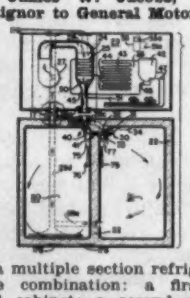
1. A rotary compressor comprising a housing having a cylinder therein, a rotor eccentrically mounted with said cylinder, a plurality of movable vanes engaging the periphery of said rotor and dividing said cylinder into a plurality of chambers, suction and discharge ports for each chamber, each of said suction ports comprising a slot in said housing communicating with one of said chambers, a suction inlet in a side wall of said slot, a valve support member slidably disposed in said slot. . . .

2,812,264. COATINGS FOR SIMPLIFYING FROST REMOVAL FROM REFRIGERATED SURFACES. Richard H. Goms, St. Paul, Minn., assignor, by mesne assignments, to Whirlpool-Seeger Corp.



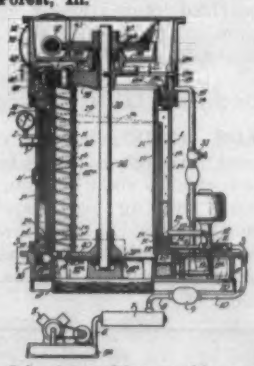
2. A composition for reducing the adhesion of frost on refrigerated surfaces comprising a vegetable oil containing two to ten percent of aluminum stearate and five to fifteen percent propylene glycol.

2,812,642. REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp.



16. In a multiple section refrigeration unit, the combination: a first self-contained cabinet; a second self-contained cabinet; a below freezing compartment in said first cabinet; a refrigerating above freezing compartment in said first cabinet; an air cooling enclosure in said second cabinet; air circulating means; conduit means cooperating with said air circulating means to circulate air from said air cooling enclosure in parallel into said below freezing and above freezing compartments and back to said air cooling enclosure; a thermostatic air controller regulating the flow of air through said above freezing compartment in response to temperatures in said above freezing compartment; a refrigerant evaporator and a refrigerant liquefier in refrigerant circulating relationship and with said evaporator in thermal exchange with said air cooling enclosure. . . .

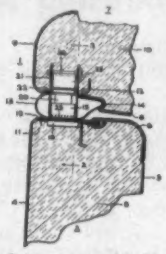
2,812,644. FLAKE ICE MAKING MACHINE. Albert Hardy Newman, Lake Forest, Ill.



1. A flake ice making machine comprising in combination: an evaporating drum comprising inner and outer concentric cylindrical walls and upper and lower annular walls to define an annular space, the drum having a refrigerant outlet passage at the upper portion of said space; a cylindrical baffle within said space and in closely spaced relation with one of the cylindrical walls, the baffle having a sloping top with its highest reach in alignment with the refrigerant outlet opening of the drum; means to introduce refrigerant to the lower portion of the space between the baffle and said one cylindrical wall. . . .

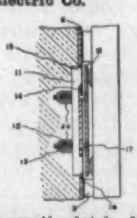
2,812,964. MAGNETIC LATCH. James L. Knight, Louisville, Ky., assignor to General Electric Co.

1. A magnetic latch for holding a door member in a closed position relative to a cabinet member comprising an elongated magnet, a rigid backing element disposed behind said magnet and arranged to be attached to one of said members, a spacer positioned between said magnet and said backing element to provide for tilting of said



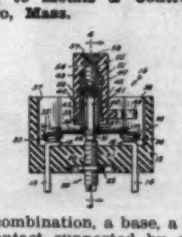
magnet relative to said backing element and said one member. . . .

2,812,965. MAGNETIC LATCH. Julius B. Horvay, Louisville, Ky., assignor to General Electric Co.



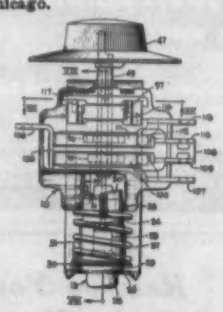
1. A magnetic latch for holding a door member in closing relation relative to a cabinet member comprising a permanent magnet adapted to be mounted on one of said members with poles thereof extending towards the other of said members, an armature assembly adapted to be mounted on the other of said members and comprising a fixed armature having portions thereof disposed opposite said poles, a saturating movable armature overlying said portions of said fixed armature and spring means normally biasing said movable armature in engagement with said fixed armature, said armatures together forming a non-saturating keeper structure.

2,813,171. THERMOSTATIC DEVICE. Wilfred W. Cardin, Attleboro, Mass., assignor to Metals & Controls Corp., Attleboro, Mass.



1. In combination, a base, a first electrical contact supported by said base, a snap-acting thermostatic element, means mounting said thermostatic element adjacent said base, a second electrical contact carried by a movable portion of said thermostatic element, said thermostatic element being responsive to a temperature change in one direction automatically to snap said movable portion from a first position to a second position but being incapable of automatically snapping said movable portion from said second position to said first position in response to a normal temperature change in the opposite direction, said second contact being electrically connected to said first contact when said movable portion is in said first position and said second contact being electrically disconnected from said first contact when said movable portion is in said second position. . . .

2,813,176. THERMOSTATIC CONTROL DEVICE. Nicholas Miller, Chicago, Ill., assignor to The Dole Valve Co., Chicago.



1. In a thermostatic switching device, a switch casing, a switch mounted in said casing, thermal means associated with said casing for operating said switch and having a power member extensible upon predetermined rises in temperature, a cam member engaged by said power member and rectilinearly moved thereby upon predetermined temperature rises, said cam member having a cam face concentric with said power member and turnable with respect thereto, to adjust the temperature of operation of said switch, a compound lever having one arm engageable with said cam face and another arm relatively movable with respect to said one arm and having operative engagement with said switch, and means yieldably connecting said arms to move together and accommodating one arm to yield with respect to the other upon over travel of said cam member, caused by over temperature conditions.

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

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CHIEF ENGINEER: Unusual opportunity with midwest manufacturer of valves and controls for refrigeration, air conditioning, gas and oil heating. Will be responsible for direction of complete engineering program. Proven administrative ability essential. Substantial experience in this field required. Record of creative accomplishment desirable. A top level assignment with progressive dynamic organization. Reply in confidence, giving education, experience, personal data, etc. BOX A5963, Air Conditioning & Refrigeration News.

NEW YORK City air conditioning dealer, volume ten million wants sales manager. Wonderful opportunity for producer. BOX A5974, Air Conditioning & Refrigeration News.

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LATEST STYLE 57 production 1 h.p. 230 V. single phase 50/60 cy. Freon-12 hermetic compressors Model AS1T16 air conditioning HBP. Complete with Klixon overload, relay, starting and running capacitor. $59.00 ea. Send for free circulars and bulletins on air conditioning and refrigeration values. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

SURPLUS AIR conditioners for sale: Self contained, hermetically sealed, 1½ ton central home air conditioners, 15,750 B.T.U.'s, air cooled, completely assembled and wired, new in original crates $165.00 each, F.O.B. York, Pennsylvania. Contact: Wm. A. Hewett YORK-SHIPLEY, INC., York, Pa. Phone: 7871.

For more information about products advertised on this page use Information Center, page 21.

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Cadillac auto air conditioner is the fourteenth make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtemp, Mobilette, Novi, Vornado, Polar-Temp, American Motors, and Buick.

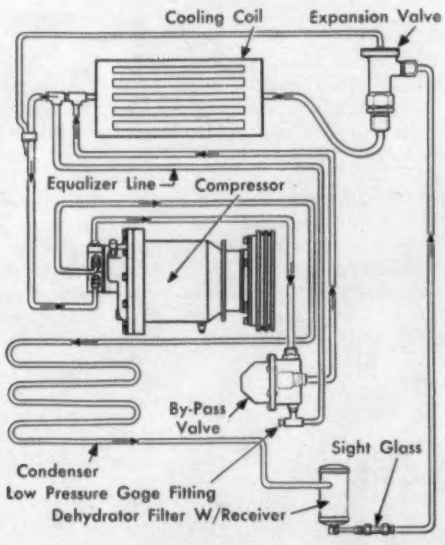

FIG. 3 — Shematic view shows refrigerant system hookup of 1957 Cadillac front-end unit. Equalizer line is omitted on trunk models.

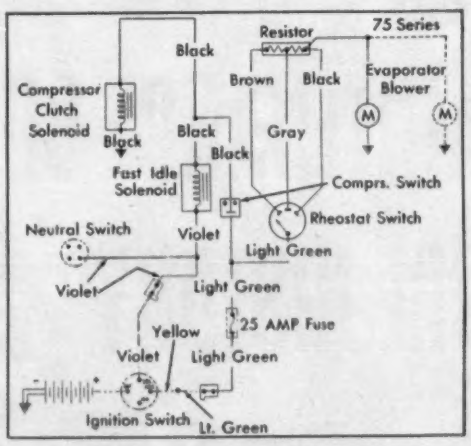

FIG. 4—Wiring diagram of 1957 Cadillac air conditioner. Dotted lines indicate two blowers wired in parallel are employed on trunk models in series 75 cars.

Cadillac (2)

Cadillac Motor Car Co.
General Motors Corp.
Detroit 32, Mich.

Controls

Control panel of the 1957 Cadillac air conditioner, both front-end and trunk systems, consists of two horizontally sliding levers which control (1) air flow into passenger compartment, (2) blower speed, (3) magnetic clutch on compressor, and (4) temperature.

This control panel is located below the instrument cluster just to the right of the steering column.

When cooling is desired, both levers must be moved to the left to the desired positions. The compressor clutch will not be engaged until both these levers are moved from the "off" position. When the "Air Cond" lever is moved from the "off" position, a valve is opened, admitting air from the evaporator unit, and the blower motor is turned on at a speed corresponding to the lever position.

(The two blower motors on the trunk-type series 75 units are wired in parallel, so both operate at the same time and same speed.)

When the "Temp" lever is moved to the left, with the "Air Cond" lever not in the "off" position, the compressor clutch is engaged. Additional leftward motion of the "Temp" lever increases the degree of cooling.

The "Temp" lever is connected by means of a cable to the control arm of a by-pass valve located below and to the right of the compressor.

The by-pass valve is connected into the suction line from the evaporator and the discharge line from the compressor. (See Fig. 3.) Its function is to prevent the suction pressure, and therefore the evaporator temperature, from dropping below the desired point. It is also pre-set to prevent icing of the evaporator.

When the suction pressure falls too low, the by-pass valve opens, permitting high-pressure refrigerant from the discharge line to enter the suction line, thus raising suction pressure.

By-pass valve is pre-set to maintain a minimum suction pressure of 30 p.s.i.g. to prevent icing of the evaporator with the "Temp" control lever in coldest position (extreme left). Moving the "Temp" lever to the right from the coldest position raises the opening point of the by-pass valve, giving higher temperatures.

On 1957 front-end systems there is also an equalizer line running from the evaporator outlet to the by-pass valve. No equalizer line is employed on the 1957 trunk system.

When either the "Temp" or "Air Cond" lever is in the "off" position, the compressor clutch is disengaged. With the "Temp" lever in "off" position and the "Air Cond" lever turned "on," it is possible to ventilate the passenger compartment air without cooling it.

Wiring

Wiring diagram of the 1957 Cadillac air conditioner is shown in Fig. 4. This applies to both front-end and trunk systems.

The circuit is arranged so that the current flows from the battery, through the ignition switch, through a 25-amp. fuse, to the compressor clutch switch, and blower control switch.

Compressor clutch switch is a normally "on" spring-loaded switch. When both control levers are moved to the left, the switch is allowed to close and current flows to the compressor clutch and to the fast-idle solenoid on the carburetor.

The fast-idle solenoid is connected through the neutral switch so that the solenoid is only energized when the gears are in neutral and the air conditioner turned on.

(To Be Continued)

Paragon Educational Program Set In 4 Cities

TWO RIVERS, Wis.—A series of four national "blast-off" conferences to present a new educational program designed "to see the importance of time" were scheduled by Paragon Electric Co. for Chicago, New York City, Atlanta, and Dallas in February.

One of the main features of the new Paragon program is the history of time booklet titled, "Time, past, present, and future," which will be offered to educators, students, and the general public "to create awareness of the importance of time and time control to the advance of science and betterment of daily living."

The new booklet accompanied with a teaching manual will be made available through Paragon distributors, or from the company, manufacturer of automatic time controls.

Research, Engineering Facility Bought by Cash

DECATUR, Ill.—A new and extensively remodeled research and engineering facility has been acquired by A. W. Cash Valve Mfg. Corp. here, producer of Cash-Acme automatic valves.

Adding over 6,000 sq. ft. of floor space to the company's operation, the newly-acquired building now houses the complete research and development laboratory and engineering and drafting departments, and a completely equipped model making shop for experimental valves.

The company said that a new emphasis is being placed on expanding its product line. Present line includes pressure reducing and regulating valves, relief valves, back pressure valves, and controls for the hydronic industry.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
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You Asked About It

From the many requests for information it receives, the NEWS will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry. If you do have a question or problem concerning which you think the NEWS might be able to help, be sure to state the problem clearly, and provide as much information as possible.

Q. We find it necessary to clean a heavy coating of grease and dirt from a fin-type unit cooler in a meat packing plant. The usual solvents for this type of work would contaminate the meat. What is the best approach?

A. Molohon—Lebanon, Ind.

A. D. R. Wallin, product manager of the Coil Dept., McQuay, Inc., states that there are two possibilities. First, a steam gun could be used for both cleaning and rinsing. Second, the fin section can be cleaned by washing with a warm solution of washing soda or "Oakite" —type cleaner. In this case, the external surface must be thoroughly rinsed with clean water after the cleaning.

* * *

Q. Two articles appeared side by side in a recent issue. In one, Frank J. Versagi pointed out the family relationship between carbon tet and the popular refrigerants. In the second, Paul Reed warned against carbon tetrachloride because of its toxicity.

Are we to assume, therefore, that the refrigerants are also harmful to the human body?

L. F. Horning, Washington, D. C.

A. The convenient family relationship of the various halogenated hydrocarbons does not always apply. Toxicity is one of the properties that is not constant throughout the family.

Carbon tet is definitely toxic. The "Freon"-type refrigerants, however, are listed as non-toxic. Both Underwriters' Laboratories, Inc. and the Bureau of Mines have conducted tests on the several refrigerants and labeled them safe for use from the toxic viewpoint. For example, Refrigerant-22 is in the same safety class as carbon dioxide which is not thought of as toxic.

Care, of course, must be taken to avoid spilling liquid on the body to prevent serious "frostbite," especially in the eyes. If a room is full of refrigerant vapors and low in oxygen content, suffocation possibly may result.

But breathing or exposure to refrigerant vapors as high as 20% by volume for an hour will cause no bodily harm. Obviously, the small amounts of refrigerant vapor breathed for short periods in normal servicing are fully and completely harmless.

Milwaukee RSES Chapter Names Braatz President

MILWAUKEE — Local chapter of Refrigeration Service Engineers Society has elected its new group of officers for the coming year, the group announced.

Walter W. Braatz, supervisor of quality control for Mueller Climatrol, Div. of Worthington Corp., is in-coming president. Other officers: Lyle Ruke, vice president; Harold Reynolds, treasurer; Fred Boehm, Jr., corresponding secretary; Al Schaak, recording secretary; Lee Miles, educational director; and Willard Hanson, sergeant-at-arms.

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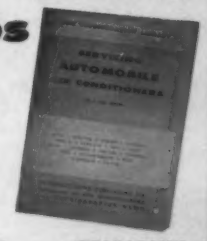

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Arkla Appoints Stephens Pres.

SHREVEPORT, La. — W. R. Stephens of Little Rock was named president of Arkla Air Conditioning Corp. of Evansville, Ind., a subsidiary of Arkansas Louisiana Gas Co., at a meeting of the board of directors here.

Les E. Walbridge, Evansville, Arkla general manager, was elected vice president of the firm which manufactures year-round gas air conditioners and natural gas lights at Arkla's Evansville plant.

B. E. Harrell of Shreveport, a vice president of ALG in charge of gas supply and gas sales, was named a new director. The board also elected Carlisle Schrader of Evansville as assistant treasurer. Schrader has served as chief accountant since ALG purchased the All-Year Air Conditioning Div. from Servel, Inc. last September.

Stephens will serve in the dual capacity as president and chairman of the board of both Arkla and ALG. He was elected president of the gas utility Jan. 24, succeeding the late J. C. Hamilton of Shreveport who also was president of Arkla.

Stephens has been chairman of the board of Arkansas Louisiana Gas Co. since Jan. 1, 1957. He maintains his office at Little Rock, but divides his time between Little Rock and Shreveport, which is headquarters for the gas utility.

Keco Leases Calif. Development Plant

CINCINNATI — Beginning March 1 Keco Industries, Inc. here will use a plant facility on long-term lease in Santa Ana, Calif. primarily for engineering and development work and move its Los Angeles office into the new plant.

The move will not replace any of Keco's special refrigeration equipment production facilities here, it was explained. Robert G. Strong will supervise the California operation as western division manager.

Issues Application Brochure

BROOKLYN—Dean Products, Inc. has issued a new two-color, six-page brochure on Dean cold plates and assemblies for refrigeration applications. Copies of this illustrated brochure are available from the manufacturer located at 1042 Dean St., Brooklyn, N. Y.

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Coolerator Offers Price Break Protection to June

ALBION, Mich.—John Lonergan, vice president in charge of sales of Lonergan Coolerator Div., McGraw-Edison Co., announced that prices on "Coolerator" and "Manning Bowman" room air conditioners will be guaranteed against price reduction until June 1, 1958.

Lonergan stated that this offers dealers and distributors complete protection against price "breaks."

Declares Dividend

NEW YORK CITY—Regular dividends of 60 cents per share on the common stock, 56¼ cents on the 4½% preferred stock, and 60 cents on the 4.8% preferred stock were declared recently by the board of directors of Carrier Corp., payable Feb. 28 on stock of record Feb. 14.

Distributor Cooling Sales Rise 1% In '57

WASHINGTON, D. C. — Air conditioning and commercial refrigeration distributor sales showed a 1% rise in 1957 over the preceding year, although sales in December dropped 21% from November and 13% from December, 1956, the Bureau of the Census reports.

Inventories slacked off in the last month 1% from November but gained 4% over the previous December, the bureau indicated.

Plumbing and heating equipment and supplies distributors had 3% less sales last year than 1956, 5% fewer in December from the like 1956 months, and 13% off from last November in the final month. Inventories dipped 5% each in December from November and from the preceding December.

Perfection Adds 7 Air Conditioning, Heating Distributors, Drops Gas Ranges

CLEVELAND — Perfection Industries, division of Hupp Corp., has simultaneously announced the appointment of seven new distributors for its heating and air conditioning products and the discontinuance of its gas range line.

In making the announcements, Carl W. Millsom, Perfection's vice president-sales and advertising, pointed out that Perfection's continued growth in heating and air conditioning lines—necessitating recent reorganization and expansion of distribution—had not been paralleled in the range line.

"Our decision to drop gas ranges is in line with our policy of emphasizing products in the growing home conditioning markets," the executive further stated.

The seven new wholesalers are the latest among two dozen recently appointed in a program to build a strong independent-wholesaler organization, it was noted. The seven are:

Boston Supply Co., Boston; G. W. Ryan Distributing Co., Kansas City, Mo.; W. G. Morton, Inc., Albany, N. Y.; Matheson Heating Supply Co., Pasco, Wash.; Star Mfg. Co., Minneapolis; H. L. McMurry & Co., Tampa and Jacksonville, Fla. (the firm formerly handled Perfection's wall furnaces only); and Texas Refrigeration & Supply Co., Fort Worth.

Distributors will handle Perfection's line of furnaces, air conditioners, and heat pumps.

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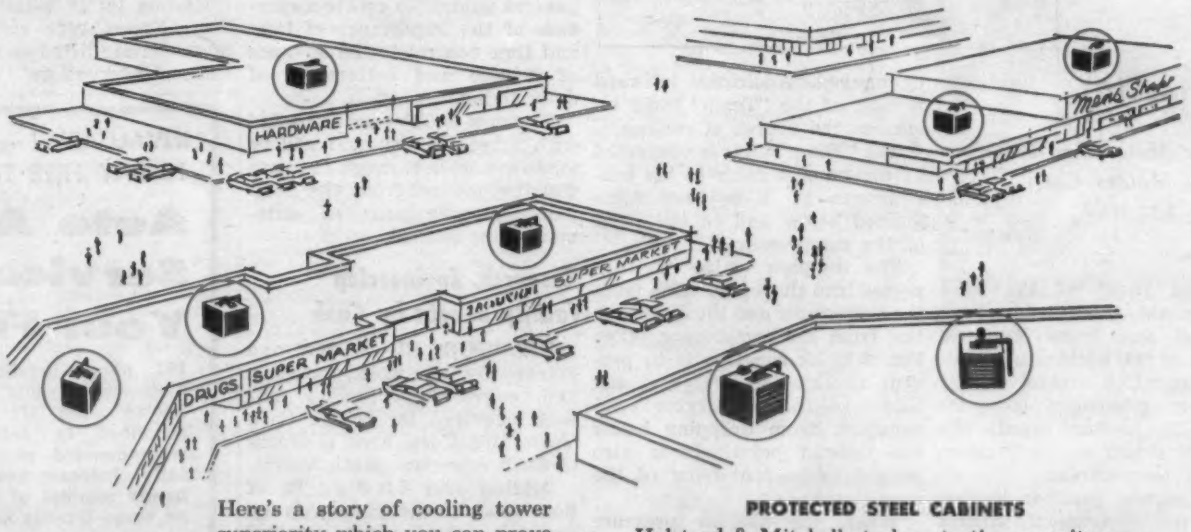

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